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Analysis of selected factors associated with participation of Iowa young farmers in agricultural extension programs

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ANALYSIS OF SELECTED FACTORS ASSOCIATED WITH PARTICIPATION OF IOWA YOUNG FARMERS IN AGRICULTURAL EXTENSION PROGRAMS

Iowa State University PH.D. 1987

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Analysis of selected factors associated with participation of Iowa young farmers in agricultural extension programs

by

Mahmoud Hassan Omer

A Dissertation Submitted to the
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CHAPTER I. INTRODUCTION

The Cooperative Extension Service is a dynamic educational organization oriented to the development of educational programs designed to help people to identify their needs and problems and to use new technological information in solving them.

The aricultural program area is one of the most important segments of this organization. This program can be viewed on a continuum representing an educational system. At one end of the continuum is the client (farmer) with all his/her socioeconomic characteristics, needs, and aspirations. At the other end is the extension professional with all his/her personal traits and competencies.

From the definition of "extension education" we recognize that extension professionals have certain roles to perform that distinguish them from other professionals. They perform several interrelated and dependent functions. They are technicians, program planners, teachers, and evaluators. At the same time, each one of these functions represents several interrelated components. The success of the agricultural extension professional's performance depends primarily on the level and degree of his/her proficiency in that function. To meet professional requirements, it becomes important to know and understand the perceptions of farmers regarding the overall effectiveness of the various agricultural programs offered by the Cooperative Extension Service.

Agricultural and extension educators have at various times expressed the feeling that the young farmer has been neglected from having opportunities to participate in organized programs to improve his/her

proficiency. In a study of factors affecting the establishment of young farm operators in Iowa, Crawford (1969) found that young farm operators were not very active in educational programs that were primarily designed to aid them in making farm management decisions. He concluded that instructors needed to make more on-site visits to work with young farm operators as well as improve the effectiveness of these visits if practices taught are to be beneficial to young farm operators. In a study of factors related to the development of county agricultural extension programs in Iowa, Rodriguez-Torres (1980) indicated that factors oriented toward determination of the clientele needs and their attitudes toward the usefulness of the program obtained the highest ratings ranging from important to very important. Both of these studies recommended the need for further research in these areas.

Since the young farmer is an important part of the agricultural community, educational needs must be identified. These needs then can be met through informal educational programs.

Statement of the Problem

Agricultural and extension educators are continually searching for ways in which to better serve extension clientele. Without evaluative input from extension clientele, extension professionals may not know steps which should be taken toward providing viable information.

While there is a general recognition for the need to help Iowa young farmers, the author in review of the literature, did not find a single study regarding the analysis of factors associated with participation of

Iowa young farmers in agricultural extension activities. As a result, a number of questions become increasingly relevant.

- How aware are Iowa young farmers of the Cooperative Extension Service?
- How do Iowa young farmers become aware of the Cooperative Extension Service?
- What perceptions do Iowa young farmers have of the type and content of the agricultural extension programs?
- What channels of communication are the most effective in reaching the Iowa young farmers?
- What are some reasons for nonparticipation by Iowa young farmers in the agricultural extension programs?

There seems to be a limited amount of current information available which would provide answers to the above mentioned questions which may be of concern to the Cooperative Extension Service. Therefore, this study is needed to attempt to provide some of the answers to these questions.

Need for the Study

The need for this study is based upon consideration of the following factors:

1. There were no known studies dealing with factors associated with participation of Iowa young farmers in agricultural extension activities.
2. The literature indicates that an emphasis needs to be placed on educational programs for young farmers.

3. Background information is needed by administrators and educators for planning and conducting educational programs for Iowa young farmers.
4. Reference material is needed by administrators and researchers who might be interested in conducting further work in these areas.

A review of the literature provides evidence that few studies have been conducted to identify characteristics and educational needs of Iowa young farmers. However, no study sought direct responses regarding the factors associated with participation of Iowa young farmers in agricultural extension activities. This absence of information magnifies the need for this study.

Purpose and Objectives

The primary purpose of the study was to determine and analyze selected factors associated with awareness and participation of Iowa young farmers in agricultural extension activities. A secondary purpose of the study was to determine perceptions held by Iowa young farmers regarding various agricultural programs offered by the Cooperative Extension Service.

The specific objectives of the study were as follows:

1. To identify selected occupational and demographic characteristics of Iowa young farmers.
2. To identify the types of contact and participation in agricultural extension activities by Iowa young farmers.

3. To determine the importance of agricultural program planning in the Cooperative Extension Service as perceived by Iowa young farmers.
4. To determine the importance of selected agricultural program areas provided by the Cooperative Extension Service as perceived by Iowa young farmers.
5. To determine the importance of the methods of instruction used by the Cooperative Extension Service as perceived by Iowa young farmers.

Hypotheses

The following null hypotheses were formulated:

1. There are no significant differences in the perceptions of Iowa young farmers regarding the level of importance of agricultural program planning in the Cooperative Extension Service when grouped according to selected occupational and demographic characteristics.
2. There are no significant differences in the perceptions of Iowa young farmers regarding the level of importance of agricultural program areas provided by the Cooperative Extension Service when grouped according to selected occupational and demographic characteristics.
4. There are no significant differences in the perceptions held by Iowa young farmers regarding the effectiveness of the methods of instruction used by the Cooperative Extension Service when

grouped according to selected occupational and demographic characteristics.

Definition of Terms

1. Cooperative Extension Service (CES): The CES organization was created by the Smith-Lever Act in 1914 and is a cooperative function between the United States Department of Agriculture, the land-grant universities of each state, and local county governments. Its purpose is to provide informal education to the people of the United States in the broadly interpreted areas of agriculture, home economics, youth development, community resource development, and related subjects.
2. Iowa Young Farmers Educational Association (IYFEA): An organization of young persons and young farm couples affiliated with a young farmer educational program under the advisement of a vocational agriculture instructor employed in the public schools of Iowa. Young farmer programs are funded through the Iowa Department of Education (Brochure, Iowa Young Farmers Educational Association, 1986).
3. Iowa Young Farmers: People between 18 and 40 years of age who are just getting established in farming or other agricultural pursuits and have special educational needs.
4. Winter Institute: An annual educational activity designed and implemented by IYFEA consisting of workshops, leadership development, tours, and member award recognition.

5. Clientele: Those special interest groups or individuals who participate in or who could potentially benefit from Cooperative Extension Service educational programs.
6. Perception: An immediate judgment or any act or process of knowing objects, facts, or truths, whether by sense, experience or by thought.
7. Program: The product resulting from all the programming activities in which the professional educator and learner are involved. For example, it would include needs analysis, planning, instruction, promotion, evaluation, and reporting (Boyle, 1981, p. 5).
8. Extension program: A series of planned events (or activities) with specific objectives. These "activities" are time-structured or sequenced to take advantage of conditions that facilitate learning or acceptance of the information being provided (Gross, 1977, p. 69).
9. Extension methods: A planned procedure, sequence of experiences, activities or events designed to bring about a desired end (Gross, 1977, p. 67).
10. Extension information: Educational information transmitted to clientele by various methods (bulletins, correspondence courses, group meetings, telephone, etc.) for which clientele have expressed a need. Descriptive or interpretative data about entities (tangible or intangible) and their relationship in terms of some purpose (Gross, 1977, p. 66).
11. Awareness: A term which implies an alertness in observing, or in

drawing inferences from what one sees, hears, or does (Cosner, 1980, p. 8).

Assumptions of the Study

This study was based on the following assumptions. It was assumed that:

1. the instrument was a valid and reliable measure of variables under investigation.
2. the perceptions of the farmers would yield useful and valid information.
3. the sample of Iowa young farmers represented the views of the IYFEA members.
4. the young farmers were interested in assisting with the improvement of the educational efforts of the Cooperative Extension Service.
5. the educational efforts of the Cooperative Extension Service were constantly being examined, due to the very rapid changes in society that strongly affected its clientele.

Limitations of the Study

The study was limited to:

1. the members of Iowa Young Farmers Education Association.
2. the degree to which the farmers interpreted, viewed, and described their perceptions regarding participation in agricultural extension programs.
3. the farmers' reactions to the items describing their awareness, participation, and importance of services provided by the

Cooperative Extension service.

Summary

The primary purpose of the study was to determine and analyze selected factors associated with awareness and participation of Iowa young farmers in agricultural extension activitiess. A secondary purpose of the study was to determine perceptions held by Iowa young farmers regarding various agricultural programs offered by the Cooperative Extension Service.

The utilization of this study should not only strengthen the programs but also ensure that the CES was achieving the results it was established to fulfill and for which it was being maintained.

CHAPTER II. REVIEW OF LITERATURE

The purpose of this study was to determine and analyze selected factors associated with awareness and participation of Iowa young farmers in agricultural extension programs. To provide a theoretical basis for, and increase understanding of the problem chosen for study, literature related to the elements of CES, and research on participation and perception was reviewed.

In order for programs and policies to respond to the learning needs of young/adult farmers, it is important to understand principles of perception and patterns of participation in terms of who participates; where, why, and when they participate; and problems/barriers faced by them.

The literature review chapter is divided into six sections:

1. The Cooperative Extension Service
2. Profile of the Adult Education Participants
3. Research on Participation
4. Research on Perception
5. Related Perception Studies
6. Summary of Review of Literature

The Cooperative Extension Service

A limited number of people know about the CES and its programs. A basic knowledge of this organization can be attained through a review of Extension's history and its elements. Sanders (1966) noted that the understanding of an organization is increased through a knowledge of its

history and philosophy. A brief review of the CES will also aid in placing this study in its proper context.

In this section, the following elements of the CES are explained: background and history, the organization, the administration, the responsibilities of personnel, the financing, the program areas, the training of staff, and the communication processes and methods used. The elements are studied at the federal, state and local levels where applicable.

Background and history

The CES originated with the passage of the Smith-Lever Act in 1914. It was established to carry information and knowledge from the land-grant institutions and experiment stations to the people. Prior to the establishment of the land-grant institutions and experiment stations, farmers had the need and desire to learn the new methods of farming and homemaking. Because of this need there were many public societies which prompted agriculture in the 1700s. Leaders such as Booker T. Washington and Seaman Knapp carried out farm demonstrations in the late 1800s and early 1900s to teach the people how to improve farm productivity. The Smith-Lever Act of 1914 and its amendment acts have provided funds, legal basis and direction for the development of the CES (The Extension Budget Guideline Task Force, 1978).

Organization

Williams (1968) wrote on his views of the organization of Agricultural Extension Services. He said that the complex nature of the

organization of the system comprises three main categories of participants; the county, the state, and the federal government. He also indicated that the manner in which the extension policy is determined is different from state to state.

The CES includes three groups of organizers; the extension functional unit of the Science and Education Administration of the United States Department of Agriculture (USDA), the land-grant college and the county or local extension service.

Administration

On the federal level, the extension service is a nationwide functional unit under the direction of USDA. It is responsible for the administration of the Smith-Lever Act and other laws and regulations involving Cooperative Extension work. The USDA also assists the state extension service in program development and implementation.

At the state level the CES is administered at the land-grant college. The dean of the CES is appointed by the governing board of the land-grant college. The appointment must be approved by the USDA.

At the local level there are several units of CES which are supervised and administered by district (area) chairmen. The county or unit chairmen are the chief administrators for the program at the unit level.

Responsibilities of personnel

The CES has personnel in the federal, state and local or county organization who jointly carry out their responsibilities. Their duties

are related and interdependent of one another.

The Secretary of the USDA is the head of the CES at the federal level. The administrator of the Extension Functional Unit of the science and Education Administration of the USDA is responsible for administering and implementing the Cooperative Extension work. A group of administrative officials, liaison officers and specialists assist the administrator to control and coordinate all extension activities of the land-grant colleges but do not have full authority over the states. The administrator reports to the Secretary of Agriculture.

Financing

Financing for the Cooperative Extension Service is provided by all the three levels of government; the federal, state and local. The amount of money provided varies from one fiscal year to another since the programs differ.

There is federal legislation such as the Morrill Act of 1862 and 1890 and the Smith-Lever Act of 1914 which appropriate funds for the operation on the CES. The Morrill Act of 1862 provided grants of public land to the states for the establishment and maintenance of at least one land-grant institution per state. The federal government also provides special funds for special needs programs.

The Smith-Lever Act of 1914 required that the states provide a certain amount of money to match the federal allocation. The local government is authorized to appropriate out of the county funds money for the support of the CES. The state land-grant institution supplements the

funds appropriated by the counties.

Program areas

The CES has four main program areas: Agriculture and Natural Resources, 4-H/youth, Home Economics, and Community Resource Development. The programs are focused towards increasing the educational status of the clientele, increasing income, increasing the social status and improvement in productivity.

Training of staff

The professionals of the CES are trained through preservice and inservice training programs. The Cooperative Extension workers are trained in an agricultural college or in the university in the areas of agriculture or related fields. The personnel include mostly workers who hold a degree in agriculture, home economics or a related field. The inservice training includes orientation programs and on-the-job training programs.

Communication processes and methods used

The communication process has a specific segment known as the "adoption process". The diffusion process is the process by which an idea gets from its source of origin to its place of ultimate use.

The CES uses the diffusion process for communicating ideas to its clientele. The methods used for reaching the clientele are summarized as follows:

1. On-site individual contact

2. Farm and home visit
3. Telephone calls
4. Correspondence
5. Group method
6. Mass media

The clientele are reached mostly on a group basis. The individual contact method is usually used only on request from the people.

In summary, the CES is linked to the land-grant universities and institutions and as such has made use of personnel and resources of those institutions. The implication here is that the CES, in order to maintain or expand its clientele base, must become and continue to be a leader in technology transfer. If extension professionals are going to be successful in educating young/adult farmers, they need to examine the profile of participants, goals, and barriers that affect participation. Without this information, program planners cannot effectively meet the educational demands of their clientele.

This section has described the CES. It has identified eight components and specified their relationships to each other. The task in the next section is to illustrate the profile of the adult participants.

Profile of the Adult Education Participants

For the past two decades, many adult education studies have focused on two related questions: (1) Who participates in adult education, and (2) Why do they participate? This section of the review of the literature focuses on profiles or characteristics of adult learners and

adult nonlearners. For program purposes, understanding profiles of young/adult farmers is useful when instructional materials and methods are being developed or support services considered. Different population groups may require different methods of delivery or support services and a knowledge of the profile of young/adult farmers can provide critical information for such decisions. An understanding of the profile of participants in adult education is important for extension educators to be responsive to the needs of young/adult farmers.

Johnstone and Rivera (1965) describe the typical adult education participant as young, well educated, under 40, employed full-time in a white collar job, earning an average income, and just as often a woman as a man.

Anderson and Darkenwald (1979) revealed that participants in adult education are more likely than nonparticipants to enjoy higher occupational status, to work in human services fields (health, education, welfare, and religion), to be eligible for veterans' benefits, to live in suburban communities, and to reside in one of the eastern states.

In addition, Aslanian and Brickell (1980) contrasted adult learners and adult nonlearners as follows:

1. Learners are younger than nonlearners.
2. Learners are better educated than nonlearners.
3. Adults with high incomes are more likely to be learners than are those with lower incomes.
4. Employed adults are more likely to be learners than are the unemployed.

5. Adults engaged in professional and technical work are more likely to be learners than those in farm work.
6. Single and divorced adults are more likely to be learners than others; widowed adults are less likely to participate.
7. Women with children under the age of 18 are more likely to be learners than women with children over 18.
8. Whites, American Indians, Orientals, and Hispanics are more likely to be learners than are Blacks.

Although these demographic factors allow adult educators to describe their service population, they cannot explain why adults learn. The demographic characteristics of learners are merely correlated with the causes that lead adults to seek education (Aslanian and Brickell, 1980).

Following are eight variables characteristic of adult learners, and are often investigated in participation studies:

Age

Age is one of the most significant distinctions between participants and nonparticipants. Feeling too old to learn, or lacking confidence in one's learning ability, are often related to adults' attitudes toward aging. Cross (1981) mentioned that age is an especially interesting characteristic because it reveals so clearly certain socialized perceptions about the role of education at various life stages. In addition, Aslanian and Brickell (1980) identify the 25-29 year age groups as containing a high proportion of participants to nonparticipants. One

factor that may contribute to these figures is the fact, reported by Cross (1981) that people in the 25-45 age range are likely to be concentrating on occupational and professional training for career advancement.

In conclusion, young adults are well represented among participants in adult education activities. There is general agreement that data collection differences among various studies do not change this fact (Long, 1983).

Education

It has been generally accepted among adult educators that educational attainment is one of the best predictors of participation in educational activities (Long, 1983); i.e., that participation in adult education increases with educational level. Those individuals who have completed high school are twice as likely to participate than those who do not have a high school diploma (Aslanian and Brickell, 1980). This relationship between educational attainment and participation is also supported in studies by Anderson and Darkenwald (1979) and Cross (1979, 1981).

Race

Johnstone and Rivera (1965) report that there are proportionally more white than black participants in adult education. Cross (1979) observes that the proportion of black adults who participated declined during the period of the years 1969-1975. Long (1983) indicated that race does not have a pronounced effect on participation except regarding

the choice between credit and noncredit activities. He reported that white adults were more likely to engage in noncredit activities than credit activities.

Income

There is almost unanimous agreement on the importance of income in predicting participation. In every study reviewed, the average income of the participant was high. Anderson and Darkenwald (1979) found that income level was not a significant predictor when education, age and occupational status were controlled. However, several studies (Aslanian and Brickell, 1980; Cross, 1979; and Johnstone and Rivera, 1965) concluded that the average income of participants was above average than that of nonparticipants.

Sex

In the early 1960s, Johnstone and Rivera (1965) reported that a participant in adult education was more likely to be male than female. National Center for Educational Statistics (NCES, 1980) data indicates that participants include slightly more females. A comparison of the data from both studies shows that women have increased their involvement in adult education to a greater degree than have men. These significant changes derive from the changing roles of women in American society. However, sex does not seem to be an important predictor of participation. Cross (1981) stated that state funding practices for adult education could have considerable impact on the relative participation rates of men and women. For example, if adult education programs in the public

schools were emphasized, more women than men would be expected to participate. If vocational and technical education were plentiful and well funded, on the other hand, the balance would tip in favor of men (Cross, 1981).

Marital status

Long's (1983) study indicated that adults who are 18 to 24 years old and have never been married have a higher participation rate (71.9 percent) than adults in any other marital category. In contrast to this finding, two other studies of participation in adult classes indicated that a majority of the participants were married and over 40 years of age (Anderson and Niemi, 1969; Aker, Jahn and Schroeder, 1968). The difference between these studies may derive from the different needs and interests of the participating adults, so that when subject category is taken into consideration, the discrepancy is explained.

Employment

Employment is an important predictor of participation. The unemployed have low rates of participation (Okes, 1976). The studies by both Johnstone and Rivera (1965) and Cross (1979) report that full time employment is a significant predictor of participation.

Occupation

Aslanian and Brickell (1980) report that professional and technical workers are more likely than other groups of workers to enroll in educational activities.

In summary, profiles of the adult participants and the findings from demographic studies do indicate that there are significant differences among participating adults, but the results fail to explain why individuals from groups with similar background characteristics will differ greatly in their participation patterns.

Research on Participation

Participation research and literature can serve as a background for adult and extension educators in better understanding their potential clientele. An understanding of who participates; where, why, and when

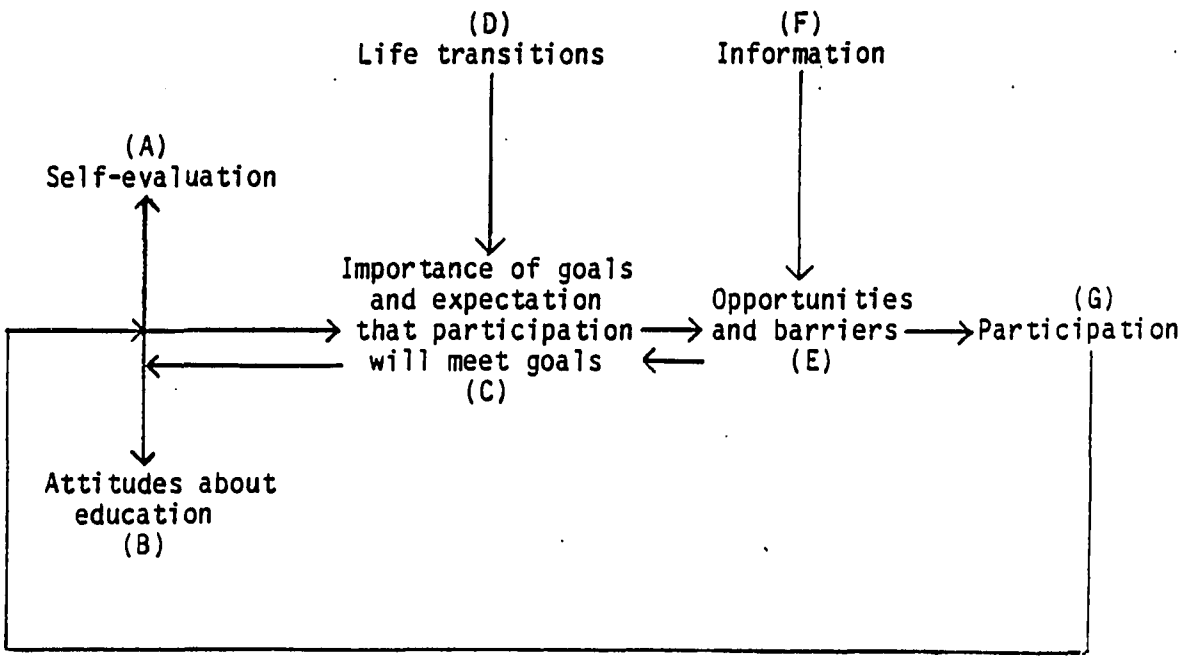


Figure 1. Chain of response model (Cross 1981, p. 124)

they participate, and problems/barriers faced by adults is important for program and policy decisions to be responsive to the needs of adults generally and for specific subgroups of the adult population.

Reasons for participation

The question of why adults participate in educational activities has long been of interest to adult educators. Prior to 1961, most conceptualizations of the fundamental question were primitive. Early efforts to identify motives relied mostly on crude checklists of reasons for participation or on direct questioning of persons who often were not fully aware of their reasons for participation.

Cross (1981) developed a conceptual framework to explain participation. Her model assumes that participation in a learning activity is the result of a chain of responses, each based on an evaluation of the position of the individual in his or her environment. The continuum implied in the order of presentation in Figure 1 indicates that forces begin with the individual and move to external conditions (Cross, 1981).

Cross' model incorporates the concepts of field theory, hierarchy of needs, and life stages and can be applied to self-directed learning as well as organized instruction.

Barriers to participation

The barriers to participation generally have been examined through two census-type surveys where the respondent volunteers one or more reasons for nonparticipation (Long, 1983). Marienau and Klinger (1977)

have identified five barriers to educational activities through an anthropological approach. They are family responsibilities, lack of access to educational facilities, and lack of money, or time, or motivation. Carp, Peterson, and Roelfs (1974) provided a lengthy list of 25 obstacles. The five primary obstacles are cost, time, unwillingness to go to school full-time, home responsibilities, and job responsibilities.

Cross (1981) proposed three categories of barriers to participation in educational activities: situational, institutional, and dispositional barriers.

Situational barriers are those arising from a person's situation in life at a given time. Lack of time due to job and responsibilities, for example, deters large numbers of potential learners in the 25 to 45 years old group. Lack of money is a problem for young people and others of low income. Lack of child care is a problem for young parents. Transportation is a situational barrier for geographically isolated and physically handicapped learners.

Institutional barriers consist of all those practices and procedures that exclude or discourage working adults from participating in educational activities, such as inconvenient schedules or locations, fee structures, inappropriate for part-time students, or inappropriate courses of study.

Dispositional barriers are related to adults' attitudes and perceptions of themselves. Many older adults feel that they are too old to learn. Adults with poor educational background frequently lack

interest in learning or confidence in their ability to learn.

The development of Cross's typology of barriers to participation is encouraging because it removes emphasis from solely personal and/or social explanations for nonparticipation. It signals instead a recognition of the interaction of personal, social, and institutional variables. Further clarification and understanding of barriers and

Positive Forces	Negative Forces
1. Survival needs	5. Action-excitement orientation of male culture
2. Changing technology	6. Hostility to education and to middle-class object orientation
3. Safety need of female culture	7. Relative absence of specific, immediate job opportunities at end of training
4. Governmental attempts to change opportunity structure	8. Limited access through organizational ties
	9. Weak family structure

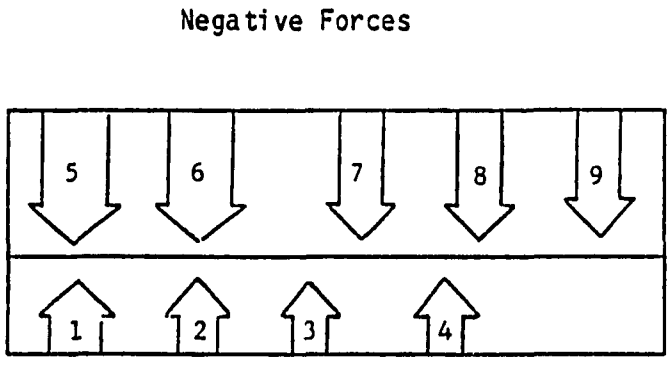


Figure 2. Education for vocational competence lower-lower class level (Miller 1967, p. 21)

obstacles to participation may also contribute to a refinement of understanding concerning motives and reasons for participation.

Participation models

In addition to the demographic and participation studies, models have been developed to explain participation. Adult educators have drawn concepts primarily from Maslow's (1954) hierarchy of needs theory.

According to Maslow's theory, needs are organized on a hierarchy of importance ranging from physiological needs to self-actualization needs. As lower level needs are fulfilled the higher level needs attain greater influence over behavior. Thus, an unsatisfied need serves to motivate behavior to fulfill that need. Applying this theory to adult and extension education suggests that adult learners tend to be attracted to educational activities which they see as satisfying some needs. Thus, a decision to participate or not to participate in an educational activity is dependent upon whether the educational program provides an opportunity to satisfy learner's needs.

Miller's (1967) social class theory builds on Maslow's theory of needs, asserts that the social forces within one's culture either stimulate or inhibit one's attempt and manner to satisfy needs. Miller's theory also combines Lewin's concept of positive and negative forces which results in a motivational force for learning. He built a general framework based on the interaction of personal need and the social structure within which the person operates. Figure 2 is used as an example. It illustrates Miller's analysis of the force present in the

motivation of the lower-lower class for education for vocational competence. The width of the arrow indicates the strength of the force and the position of the horizontal line indicates the resultant force; the line in this example is low, indicating little motivation for participation.

Figure 2 shows a very low level of motivation for education on the part of the lower-lower class. Because of this low level of motivation, the program planner would have to work towards modifying some of the existing forces before the lower-lower class would participate in educational programs.

Perhaps the primary starting point for much of the participative research began with the work of Houle (1961). He identified three types of learners orientation which were:

1. Goal-Oriented Learners: Individuals motivated to participate by clear cut vocational objectives.
2. Activity-Oriented Learners: Individuals motivated to participate for the satisfaction of social needs rather than the announced purpose of the educational activity.
3. Learning-Oriented Learners: Individuals who view learning as a way of life rather than a deliberate activity and who seek knowledge for its own sake (Houle, 1961, p. 16).

Houle developed these learning orientations from in-depth interviews with 22 adult learners in the Chicago area. Over the past 20 years adult education researchers have used this typology as a basis for theory-testing and hypothesis confirming activities.

Morstain and Smart (1974) identified the following six factors for participation:

1. Social Relationship: Reflects a desire to develop or improve one's relationships with other people. Individuals who score high on this factor indicate a need to make new friends, participate in group activities and improve their social functioning.

2. External Expectations: Clearly reflects a degree of compulsion or pressure external to the individual to participate in educational activities.

3. Social Welfare: Is indicative of an altruistic concern for other people, community betterment, or for mankind generally. Persons who score high on this factor see education as preparing them for participation in community affairs.

4. Professional Advancement: Is strongly associated with improving one's occupational performance and status.

5. Escape/Stimulation: Reflects a need to escape from routine, boring or frustrating situations and desire to find intellectual stimulation.

6. Cognitive Interest: Is identical to Houle's conception of the learning oriented participant (Morstain and Smart, 1974, p. 94).

An immediate conclusion that one might draw from these findings is that the dynamics of motivation are more complex than Houle originally envisioned. While Cognitive Interest is identical with Houle's Learning Oriented category, the other factors are much more concrete than Houle's broad categories of goal and activity orientation.

Morstain and Smart (1974) also examined the relationships between sex and age and mean importance scores for each of their six motivational factors. They found that younger participants had somewhat higher mean scores on the Social Relationships factor and that scored slightly higher than women on the External Expectations dimension. There was a slight tendency for women to put more importance on Cognitive Interest items.

In summary, much of the research has described the participants by a

variety of demographic categories. Some studies have categorized the participants according to the type of class enrolled in. Others have attempted to define certain motives, goals or reasons for participation. However, if the extension educator is going to fully understand the implications of participation studies, it is important to base research upon existing theories or develop new ones that can be tested.

Research on Perception

This section presents a review of literature on perception and the role it plays in individual behavior as well as the importance that the clients' perception of the extension agent has on client learning of new techniques or ideas. Literature was reviewed in this area to develop a definition of perception consistent with the study and to provide increased understanding of factors that may have influenced Iowa young farmers' perceptions of the CES.

The concept of perception

Tuan (1974) defined perception as the response of the senses to external stimuli and purposeful activity in which certain phenomena are clearly registered while others recede or are blocked out. Coleman (1969) stated that individuals are sensitive to information related to their needs and wishes. People also pay more attention to information about themselves and to information they know they will have to act on later. This tendency of an organism to single out what it considers most relevant to the purposes is called selective vigilance. Individuals try to screen out information that would make them uncomfortable, seeing only

the aspects of a situation that are consistent with their expectations, assumptions and wishes (Coleman, 1969).

Perception was also defined by Hilgard, Atkinson, and Atkinson (1975) as the process of becoming aware of objects, qualities, or relations by way of the sense organs. This definition was used as the basis for this study which recognized that perception of an organization is dependent upon sensory factors.

Attitudes and perceptions

Attitudes are acquired through experiences which have a pronounced affective component. Attitudes are learned through imitation more than anything else.

According to Blair (1962) attitudes have both perceptual and affective components; attitudes help to determine not only what the individuals see but how he sees it.

When an individual has acquired a negative attitude toward a person, he is ready to respond with those modes of behavior which show dislike or defense. He is often able to notice in that person the slightest gesture or suggestion, while others are unaware of those details. He ascribes motives to that person based on his existing biases or past experiences. As attitudes operate on perception, an individual tends to see what he is looking for and therefore reinforces his attitudes even when there is evidence to the contrary. For these reasons, attitudes are sometimes highly resistant to change.

As attitudes are learned, it is reasonable to assume that people

have learned from those in their immediate groups and other contacts. If an individual has learned to distrust extension agents and he undergoes an experience which indicates that extension agents are trying to help him and other media reinforce this idea, his perception of the extension agent could change completely from the one established through association with his close friends. However, if an extension agent is unfriendly and not helpful, this attitude will be reinforced which will then be more difficult to change.

Perception and the extension agent

The extension agent is a teacher; his main function is to teach farmers new practices and ideas, helping them to apply new agricultural techniques. If the extension agent, while carrying out his function of teaching clients new techniques or ideas, is perceived by the farmers as a helpful person who is interested in their problems, he probably will be an effective worker in bringing about changes in the cognitive, affective and psychomotor domains of his clients.

It is more important for the clients to have a favorable perception of the extension agent. Niehoff (1966) stated that the important thing is that an extension agent is accepted by local people as technically competent, regardless of the actual state of his competency. In other words, what is important is how the extension agent appears to the clients rather than what he actually may be. Niehoff mentioned further, some cases where highly qualified people have failed to take into consideration the differences in the environment in which people were

found, as a consequence have made technically bad judgments which brought about an unfavorable perception by the recipients.

Many times farmers see the extension agent as belonging to a higher stratum of society. This perception can sometimes be due to the fact that the extension agent is unable to adopt to the farmers' environment. In other cases, it may be due to the fact that the extension agent in trying to maintain social distance, keeping himself aloof from the farmer (Niehoff, 1966).

Perception and adoption

The adoption process includes a change process. A farmer must go through a change process if he is to adopt a new practice or technique (Rogers, 1983).

When an individual has a problem, he purposefully tries new approaches based on his past experiences. He perceives the effects of those approaches and based on them he will accept or reject them as valid for the solution of his problem.

According to Niehoff (1966), the process of induced sociocultural change has two basic functions: the action of the extension agent and the reaction of the recipients. He stated that the reaction of the recipients is based on their attitude and behaviors, depending on the recipients' motivation. Therefore, perception is essential for induced socioeconomic change or the adoption of new ideas.

Based on what was said, one can deduct that the extension agent's main job is to make the farmers perceive that the practice or idea being

taught is good for them and to make them understand why it is good so that they will understand the meaning of it.

In summary, the perception literature revealed the complexity, individuality, and subjectivity of perception formation. It emphasized the persistence of original perceptions and the fact that some cues are more influential than others in the formation of perceptions. The literature further indicated that perceptions are influenced by role expectation, that they reflect what the individual expects and is some cases, what he wants to perceive. These principles are of particular importance for this study. The task in the next section is to determine the perception that various groups have of the CES.

Related Perception Studies

The review of literature indicated that no study has been conducted to determine the perceptions of Iowa young farmers regarding participation in agricultural extension programs. However, there has been a substantial amount of research dealing with perceptions of various groups regarding the Cooperative Extension Service, particularly by extension related or agricultural related clientele. The findings of these related studies provided additional areas of investigation for this study.

Hoiberg and Swope (1979) conducted a study in Iowa to determine farmers' perceptions of extension effectiveness. The population from which the sample was drawn consisted of all farms in the state of Iowa reporting at least $2500 in gross agricultural sales during 1976. A

two-staged area sampling design, representing all Iowa counties, was utilized and yielded 933 completed interviews with primary operators. A multidimensional index was constructed with the selected items reflecting general statements as to the goodness of fit of existing extension programs to individual respondents' operational situations. Two models of organizational effectiveness were advanced and were suggested as being consistent with efforts to use the perceptions of actual or potential client groups as a method for determining effectiveness. The findings of the study indicated that Iowa farmers hold positive perceptions of extension and there was a fair amount of agreement that organizational goals, defined in this way, are being met. Several variables such as fatalism, social participation, media usage and extension contact were related to perceived effectiveness at statistically significant levels, the magnitude of the associations were not large, especially when considering the size of the sample. Other key variables, such as age, education, farm size and cosmopolitanism were found not to be related to perceived effectiveness. A stepwise multiple regression procedure on the relationship between the independent variables and perceived extension effectiveness was also conducted, with the reduced model, containing extension contact, fatalism, media usage and education, accounting for only about 10% of the variance in perceived effectiveness.

Hoiberg and Swope concluded in their summary as follows:

> Additional studies should be conducted to determine whether the findings are generalizable to other populations and to discover whether other variables may be important in the explanation of perceived extension effectiveness. In addition, studies that more specifically focus on the

> interaction of the behavioral dimension (extension contact) and the attitudinal dimension (perception of effectiveness) would seem to be important (Hoiberg and Swope, 1979, p. 20).

Kantner (1980) conducted a study in Pennsylvania to assess the quality of county agricultural extension programs as perceived by extension clientele. The population for this study consisted of 3,280 extension clientele, 67 county executive committee members, 12 agricultural agents, and two regional assistant directors. The survey instrument was sent to a stratified random sample of the clientele. The same survey instrument was also sent to the 67 county executive committee members. Fifteen county agents and two regional assistant directors also responded to the survey instrument. The four extension groups were asked to respond to 44 statements concerning the total extension agricultural program. The findings indicated that there was a difference in how the four extension groups perceived the quality of extension programs. Agricultural agents had the highest assessment of the quality of the agricultural programs, followed by the county executive committee members, extension clientele, and regional assistant directors. The findings also indicated that degree of participation in extension educational programs, years of formal education, and age level were three factors which had a significant influence on how extension programs were perceived. The greatest degree of dissatisfaction with the extension programs was with those extension clientele who did not attend educational meetings, those who had completed one to four years of college, and those who were 66 years of age or older.

Kantner pointed out that:

> If agricultural agents want to do a better job of developing a comprehensive agricultural extension educational program and effectively meet the needs of all clientele, they need to consider a variety of clientele characteristics which include: the degree of participation in extension education meetings, age, and level of formal education (Kantner, 1980, p. 87).

Cosner (1980) conducted a study to determine perceptions of Oklahoma residents toward the Cooperative Extension function of Oklahoma State University Division of Agriculture. Two thousand four hundred one individuals were utilized for this study. A telephone survey/interview was used to collect information from the respondents. A 35-item survey instrument was used for the telephone survey. One thousand six hundred sixty-two Oklahoma residents responded to one or more parts of the survey. The findings of the study indicated that Oklahoma residents' awareness of the Cooperative Extension Service was not influenced by household income. Age, occupation, educational level, race, and sex were influential in determining awareness of Cooperative Extension. As awareness of Extension increased, the number of residents who believed that increased funding for Cooperative Extension would be beneficial. The number of residents who wanted extension program information increased as awareness of extension increased. Residents involved in agriculture were more apt to want information about extension programs than those with no involvement in agriculture. Respondents with an involvement in agriculture tended to believe that increased funding of extension would be beneficial in larger percentages than those residents from counties with no involvement in agriculture. Residents from counties with large urban populations which provided larger amounts of

county funding support for extension were less aware of extension than those residents from more rural oriented counties which provided lower amounts of county funding for extension. Over one-half of Oklahoma residents read news columns or listened to radio programs or watched television programs by extension personnel.

In summary, Cosner concluded:

> The Cooperative Extension Service should provide a planned public relations program to be used by all extension personnel on a continuous basis. This program should communicate to the residents of Oklahoma and Oklahoma legislators, at the state and county level, the purpose, the programs, and the needs of extension work in Oklahoma (Cosner, 1980, p. 106).

Adkins (1981) conducted a study to determine the perceptions of Maryland state senators and representatives toward the Maryland Cooperative Extension Service. Selected personal factors were investigated to assess their impact on the legislators' perceptions of extensions' purpose, programs, faculty, clientele, organization, and finance. The factors most frequently correlated with the Maryland legislators' perceptions of extension were: geographic region represented, legislators' place of residence, constituents represented, age of the legislator, and race of the legislator. Those legislators representing rural areas, living in rural areas and small towns, or representing constituents from those areas were more familiar and involved with extension work. Older legislators were more familiar with the extension service and were more likely to be acquainted with extension agents.

Adkins concluded that:

> University administrators in their lobbying efforts must show Extension as an integral and valued part of the total university. Extension administrators should develop and maintain a personal relationship with legislators based on credibility and respect. Despite the best efforts of administration, the legislators' strongest perception of Extension will be determined by county faculty. Agents must take a conscious effort to learn about their legislators and to develop a personal acquaintance with them (Adkins, 1981, p. 11).

Gardner (1982) studied the perceived impact of Cooperative Extension Service educational programs by flue-cured tobacco farmers in Virginia. A total of 200 farmers were selected at random in each of four farm-size strata and within fourteen counties in Virginia. Of the total sample population, 127 usable questionnaires were returned. He found that flue-cured tobacco farmers felt extension would have more impact if meetings were held at night and in community meeting places rather than during the day at the county extension office. The study indicated that the farmers preferred personal contact with extension employees over contacts by mail, through the mass media, or by the use of extension publications. The first choice of respondents relative to extension contact was the visit to the extension office; second, having the extension agent on the farm; third, attending extension tobacco meetings, and fourth, personal acquaintance with the county extension agent.

Abdel-Rehim (1983) investigated the quality of The Missouri Agricultural Extension Programs as perceived by extension council officers and extension clientele. The population of this study included all extension council officers and extension clientele who use the extension program in rural and urban counties in Missouri. The sample

consisted of 80 extension council officers and 240 extension clientele in ten selected rural and ten selected urban counties. The findings indicated that extension council officers and extension clientele were basically satisfied with the Cooperative Extension Service in Missouri, extension clientele indicated improvements were needed in some areas, older persons and those citizens of longer residence seem to be less critical of the extension programs, and more educated persons were less patient than those with less education on release of new information.

Jennings (1983) conducted a study to determine Arkansas residents' perception of the Arkansas Cooperative Extension Service. Five counties were used for the study. Selection of individual respondents was determined by systematic selection from a compilation of complete telephone directories serving each of the five counties. Three hundred eighty-five adult Arkansas residents completed a 23-item telephone questionnaire designed to determine perception of the Arkansas Cooperative Extension Service and to collect demographic data. The results indicated that almost 68 percent of the respondents were aware of the presence of the county extension office, 31 percent of the respondents had first heard of extension through the mass media, more than 25 percent of the respondents specified that the purpose of extension was to educate, inform, or teach, and the two most common methods of contact were telephone and office visit, with group meetings and mail being used less often.

In summary, Jennings concluded:

Arkansas residents become aware of the Cooperative Extension

> Service by a variety of methods. No one source is adequate to get the job done. Mass media was an important way of becoming aware of extension. Therefore, mass media should be used to inform Arkansas residents about programs and services offered by extension (Jennings, 1983, p. 105).

Haskell (1984) conducted a study to determine the perceptions of extension personnel and selected public leaders towards the future direction of the Iowa Cooperative Extension Service (ICES) in regard to four issue areas. The issue areas were: program philosophy, mission goals, and priorities; roles, responsibilities, and resources; program delivery methods; and evaluation and accountability. Subjects for the study were all professional Iowa Cooperative Extension Service personnel and 716 public leaders identified by the Directors of ICES. The findings indicated that there were significant differences in the perceptions of extension personnel.and public leaders toward the four issue areas. There were also significant differences in the perceptions of extension personnel and public leaders when each was grouped by the selected demographic variables. The public leaders' responses tended to be more homogeneous than the responses of extension personnel. However, the study produced many important recommendations for improvement of the programs. These recommendations are summarized as follows: (1) A continuing effort should be made by ICES to provide the results of research from all colleges of Iowa State University to all residents of the state, (2) additional efforts are needed by ICES to respond to locally perceived needs, (3) ICES should continue to use personal contact such as face-to-face consultation when delivering programs at the county level, (4) ICES should increase the involvement of community and

volunteer leaders in local extension programs, (5) assistance should be given to extension personnel to assist them in conducting an evaluation of their programs, and (6) a study should be conducted within five years to determine if the perceptions of extension personnel and public leaders have changed.

In summary, the review of literature indicated that the clientele characteristics have a great effect on the perceptions of agricultural extension programs. The review also indicated that the research previously conducted has been beneficial to the extension service and continued research is necessary to strengthen extension for the future.

Summary of Review of Literature

The review of literature chapter has provided a background for understanding the CES, research on participation and perceptions. Also, an analysis of the findings of other research studies relating to perception of the extension service by various groups was presented. While the research identified is not entirely specifically related to this study, it does provide a background and offers clues to possible relationships.

The success of the CES may be attributed to the nature of the organization and its strong administration. The federal, state, and local governments jointly finance, organize and administer the CES.

The studies by Aslanian and Brickell (1980), Cross (1981), and Johnstone and Rivera (1965) have shown that participation in adult education will vary with a variety of factors such as age, education

background, and occupation. Several additional studies addressing specific factors affecting motivation for participation have been suggested by Morstain and Smart (1974), Houle (1961), and Cross (1979, 1981).

Important studies have also been done in the field of barriers to participation. The well-known researcher in this group is Cross (1981). According to her study, these barriers can be classified into three general categories: situational, institutional and dispositional.

In addition to the barriers to participation, models have been developed to explain participation. Adult educators have drawn concepts primarily from Maslow's (1954) hierarchy of needs theory.

A review of the literature regarding the clientele perceptions of the extension programs and services was also presented. It was found through this review that most of the studies were conducted using the perceptions of clientele involved in agriculture or directly involved with the Extension Service. There were no studies found that utilized the perceptions of Iowa young farmers regarding participation in agricultural extension activities.

The review of literature also indicated that there is a need for adult and extension education, more specifically of young farmer and adult farmer education. The review has provided evidence that a problem does exist, that agricultural professionals, to some degree, may be attempting to meet the challenge, and that possibly certain relationships do exist which may influence the capability of an extension professional to meet these challenges.

Overall, extension is confronted with challenge in determining program content and methodology for meeting the needs of young/adult farmers.

CHAPTER III. METHODS AND PROCEDURES

The central purpose of this study was to determine and analyze selected factors associated with participation of Iowa young farmers in agricultural extension activities. A secondary purpose of the study was to determine perceptions held by Iowa young farmers regarding various agricultural programs offered by the Cooperative Extension Service.

This chapter presents the research procedures used in the following sections: (1) Research Design, (2) Population and Sample, (3) Instrumentation, (4) Data Collection, and (5) Statistical Analysis.

Research Design

This study was conducted using the descriptive survey method. The term "descriptive research" represents a broad range of activities that have a common purpose of describing situations or phenomena (Mason and Bramble, 1978). These descriptions may be necessary for decision-making or to support broader research objectives. Descriptive research is also used to describe the characteristic of Iowa young farmers, and supply information on the perceptions of the population sample towards the agricultural extension activities.

Population and Sample

The population of the study was the membership of the Iowa Young Farmers Educational Association (IYFEA). The 1986 membership in this organization was 400. This number represented a very small percentage (5%) of the farmers in Iowa between the ages of 18 and 40. Members in this organization (IYFEA) participate in educational, leadership, and

community development activities. A listing of all farmers in the population was secured from the Iowa Department of Public Instruction in Des Moines. The survey instrument was first distributed to the young farmers who attended the Winter Institute on February 9, 1986. A total of 51 members of IYFEA completed the survey instrument.

An additional random sample of 75 young farmers was drawn from the population.

Instrumentation

The survey instrument was developed using the experiences of the researcher, the literature, and suggestions from Iowa State University personnel. The questionnaire was pretested with faculty and graduate students of the Department of Agricultural Education at Iowa State University in an effort to strengthen the survey instrument. Nonessential questions were eliminated and wording was improved (Appendix).

The survey instrument covered the following areas or segments:

1. Appraisal by the respondents regarding the importance of program planning in agricultural extension.
2. Appraisal by the respondents regarding the importance of educational extension program areas.
3. Appraisal by the respondents regarding the importance of extension methods.
4. Occupational and demographic characteristics of the respondents.

5. Type of extension contact and involvement data.

Likert-type scales were used for the first three areas as follows: 1 = Not Important, 2 = Of Little Importance, 3 = Somewhat Important, 4 = Important, and 5 = Very Important.

Collection of Data

The data were collected from the young farmers who attended the Winter Institute of the IYFEA on February 9, 1986. A total of 51 members of the IYFEA completed the survey instrument. An additional random sample of 75 members of IYFEA was drawn from the population. Questionnaires were mailed the third week in April, 1986. Follow-up letters were mailed the third week in May. During the third week of June, phone calls to the remaining nonrespondents were made.

Of the 75 young farmers in the sample, 65 did not respond to the initial mailing. Through follow-up procedures, 41 of the nonrespondents returned completed questionnaires, for a final response rate of 51, or 68 percent.

Independent t-tests were used to determine if significant differences existed between the first group who attended the Winter Institute and the second group of young farmers (the random sample). The results of the t-test indicated that for the most part, there were no significant differences between the two groups (Appendix). The two respondent groups were considered to be from the same population.

Analysis of Data

The computer subprograms used to analyze the data were selected from the Statistical Package for Social Science ($SPSS^X$). The following subprograms and procedures were utilized:

1. The subprogram FREQUENCIES was used to analyze means, standard deviations, frequency counts, and percentages of types of participation and demographic data.
2. The subprogram RELIABILITY was used for post hoc reliability testing on the importance of planning, program areas, and extension methods items.
3. The subprogram ONEWAY was used for analysis of variance to determine if significant differences existed among Iowa young farmers when grouped by age, level of education, gross income derived from all sources, and gross income derived from farming. The Scheffé test was performed to locate the sources of differences when significance (.05) was found.
4. The subgroup T-TESTS was used to calculate t-values for the difference in responses when young farmers were grouped by sex and type of farmers (full-time versus part-time farmers). The .05 level of significance was used as a basis for determining significant differences among means.

CHAPTER IV. FINDINGS

The primary purpose of this study was to determine and analyze selected factors associated with awareness and participation of Iowa young farmers in agricultural extension programs. A secondary purpose of the study was to determine perceptions held by Iowa young farmers regarding various programs offered by the Cooperative Extension Service.

This chapter presents the results obtained from the statistical analysis of the data. The chapter is divided into the following parts: (1) Reliability Tests, (2) Demographic Information, (3) Types of Participation and Contact, (4) Importance of Program Planning, (5) Importance of Educational Program Areas, and (6) Importance of Extension Methods.

Reliability Tests

To examine the level of internal consistency and stability of the grouped items in the instrument, Cronbach's alpha procedure was used as a part of the data analysis in reliability tests for the importance of planning, program areas, and extension methods. Results of the reliability tests are presented in Table 1. The alpha coefficient for the entire instrument on the importance of planning, program areas and extension methods was .94. The items were divided into seven subgroups for further discussion and analysis. The alpha coefficient for the subgroups ranged from .80 to .95. The coefficient values were deemed to be sufficiently high to proceed with analysis and interpretation.

Demographic Information

This section describes the occupational and demographic characteristics of Iowa young farmers. Distribution of respondents by sex is shown in Figure 3. Of the 102 farmers studied, 80 (78.43%) were males and 18 (17.65%) were females.

The distribution of respondents by age group is presented in Figure 4. Forty seven respondents (46.08%) indicated an age between 20 and 29 years; 45 respondents (44.12%) indicated an age between 30 and 39 years; 4 respondents (3.92%) indicated an age between 40 and 49 years; 2 respondents indicated an age between 50 and 59 years; and one respondent indicated an age of 19 years or below. Only one respondent indicated an age of 60 years or above. The mean age of the respondents was 31.20 years. For further analysis and discussion, the age groups were collapsed into the following groups: 19 to 29, 30 to 39, and 40 or above.

The distribution of respondents by the occupation in which they

Table 1. Results of reliability tests on the survey instrument regarding importance of planning, program areas and extension methods

Instrument scale	Number of items in scale	Cronbach's alpha coefficiency
Importance of Planning	12	.88
Livestock Production	8	.80
Crop Production	9	.82
Agricultural Mechanics	8	.91
Horticulture	4	.95
General Agriculture	5	.83
Extension Method	17	.91
Overall		.94

spend 50 percent or more of their time is presented in Figure 5. Of the 102 farmers studied, 67 (65.69%) spent 50 percent or more of their time in farming, while 22 (21.57%) spent 50 percent or more of their time in professional related jobs. Only 9 respondents (8.82%) spent 50 percent or more of their time in homemaking related jobs.

Figure 6 shows that 64 respondents (62.75%) were full-time farmers, while 27 respondents (26.47%) were part-time farmers. Only 8 of the respondents (7.84%) were no longer farming.

The distribution of respondents by present residence is presented in Table 2. The data indicated that 89 respondents (87.25%) lived on a farm; 4 respondents (3.92%) lived in a small town of less than 2,499

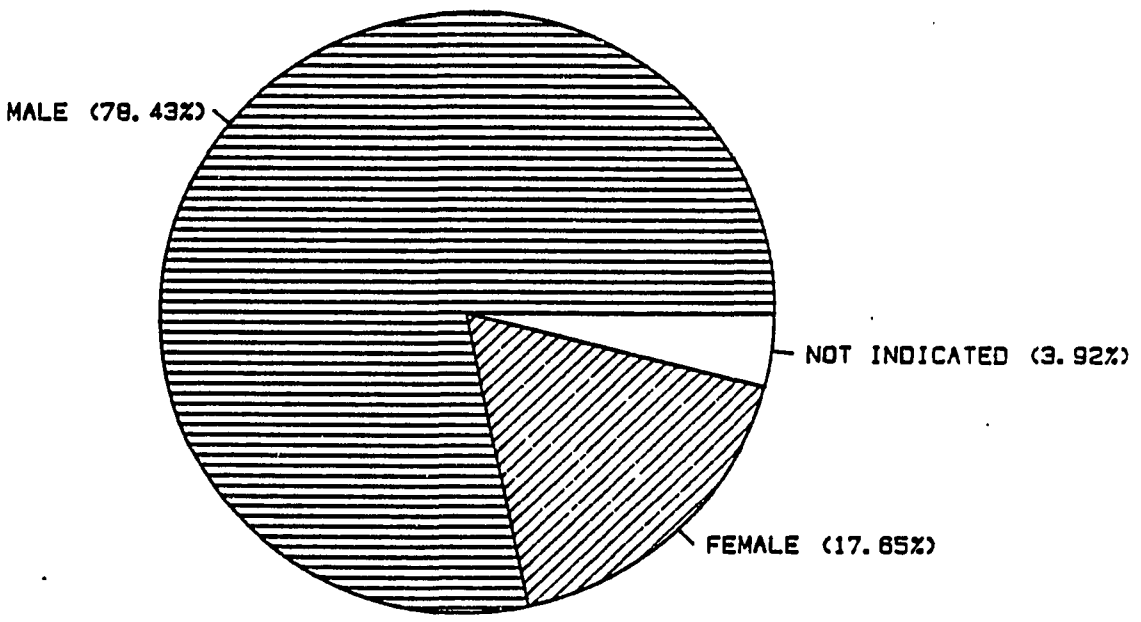


Figure 3. Distribution of respondents by sex (N = 102)

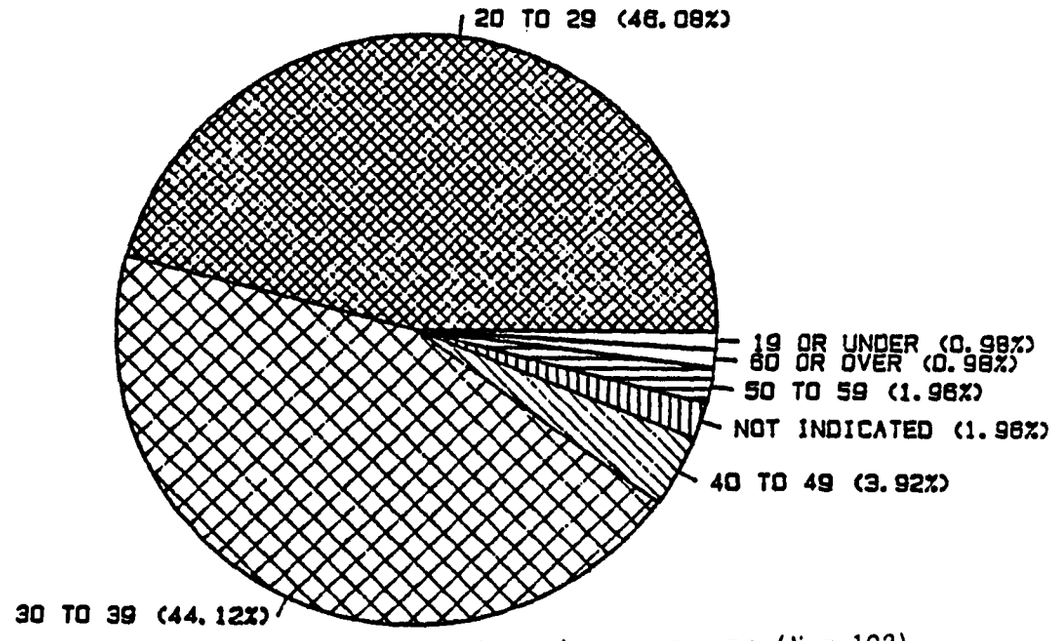


Figure 4. Distribution of respondents by age groups (N = 102)

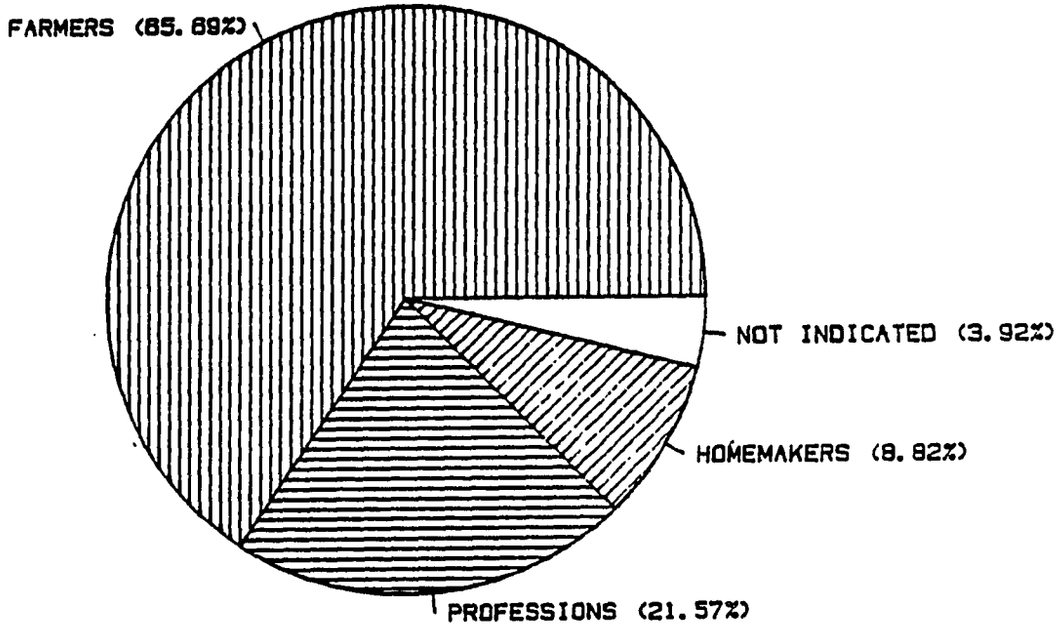


Figure 5. Distribution of respondents by the occupation in which they spend 50 percent or more of their time (N = 102)

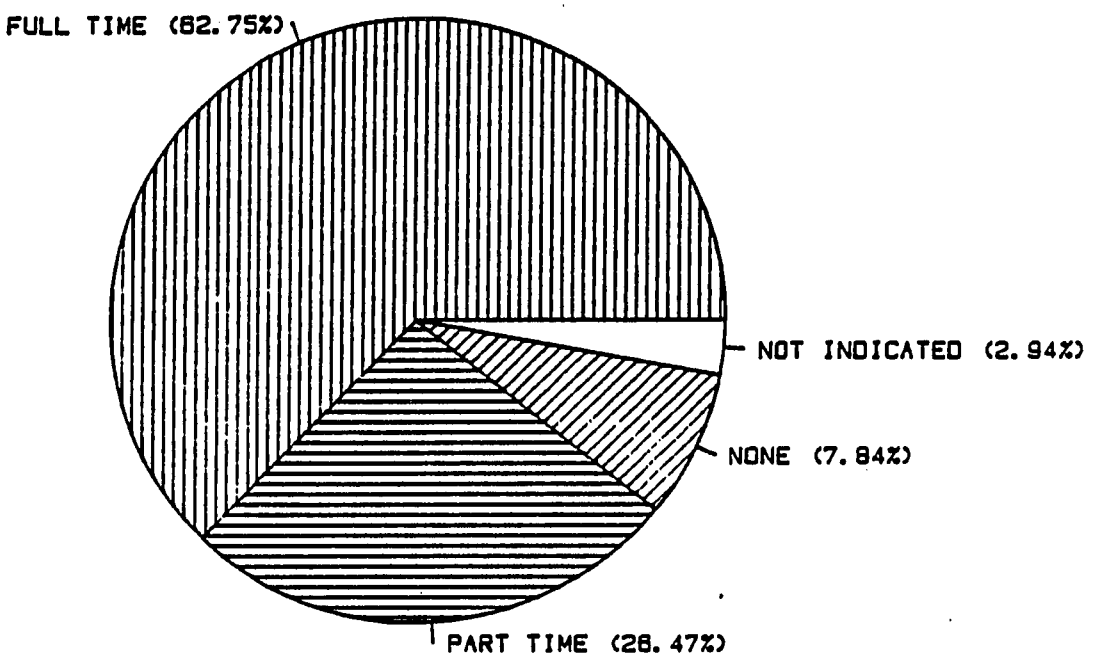


Figure 6. Distribution of respondents by the proportion of time involved in farming (N = 102)

Table 2. Distribution of respondents by present residence (N = 102)

Present residence	Frequency distribution N	%
Farm	89	87.25
Rural nonfarm	1	.98
Small town (less than 2,499 people)	4	3.92
Town (2,500 to 20,000 people)	4	3.92
City (more than 20,000)	2	1.96
Not indicated	2	1.96
Total	102	100.00

Table 3. Distribution of respondents by highest level of education completed (N = 102)

Educational level completed	Frequency distribution N	%
Grades 1 to 8	0	0.00
Grades 9 to 11	1	.98
Grade 12	26	25.49
Some college or technical school	30	29.41
Associate degree	16	15.69
Bachelor's degree	23	22.55
Master's degree	2	1.96
Beyond a master's degree	2	1.96
Not indicated	2	1.96
Total	102	100.00

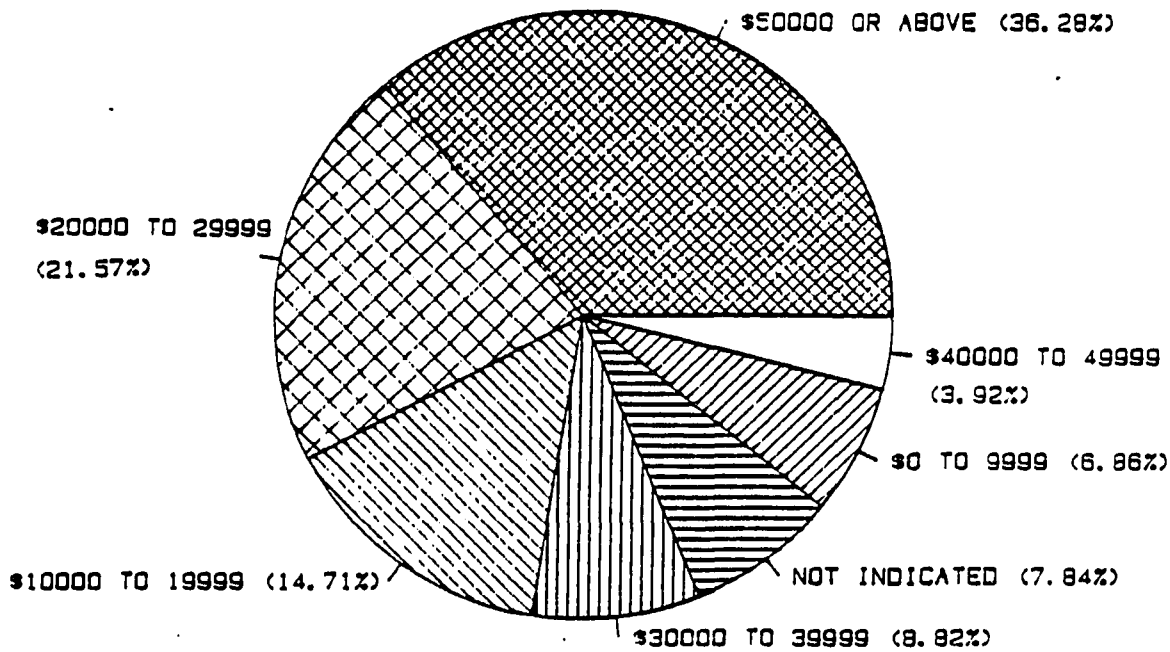


Figure 7. Distribution of respondents by amount of gross income derived from all sources (N = 102)

people; 4 other respondents (93.92%) indicated that they lived in a town of 2,500 - 20,000 people; and 2 respondents (1.96%) indicated that they lived in cities of 20,000 and over. Only one respondent (.98%) indicated that he lived on rural non-farm.

The distribution of respondents by the highest level of education completed is shown in Table 3. The data indicated that 30 respondents (29.41%) had completed some college or technical school; 26 respondents (25.49%) had completed twelve years of education, 23 respondents (22.55%) had obtained bachelor's degrees; 16 respondents (15.69%) had obtained

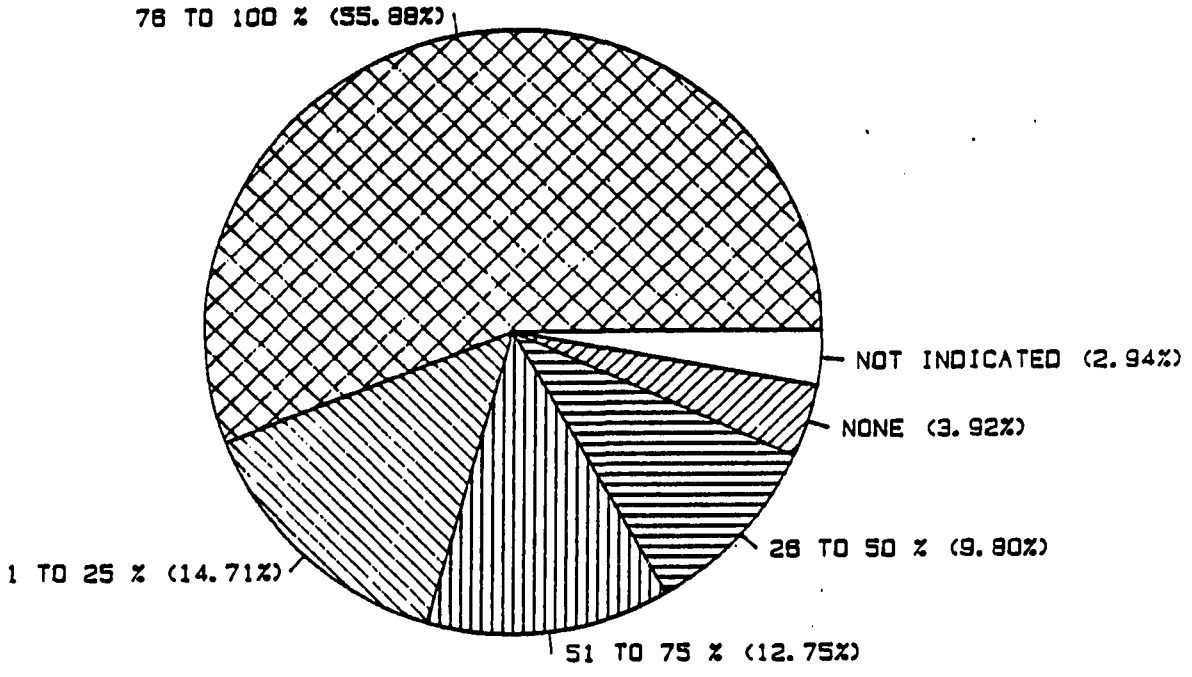


Figure 8. Distribution of respondents by amount of gross income derived from farming (N = 102)

associate degrees; and 4 respondents (3.92%) had obtained advanced degrees. Only one respondent (.98%) had only completed between grade 9 and grade 11. The respondent categories were collapsed to four groups for further analysis and discussion.

The gross annual income of respondents is illustrated in Figure 7. All respondents were asked to indicate their gross income derived from all sources. Thirty-seven respondents (36.28%) reported an annual gross income of $50,000 or above; 22 respondents (21.57%) reported a gross income between $20,000 and $29,999; 15 respondents (14.71%) reported a gross income between $10,000 and $19,999; 9 respondents (8.82%) reported a gross income between $30,000 and $39,999; and 7 respondents (6.86%) reported a gross income of $9,999 or less. Only 4 respondents (3.92%) reported an annual gross income between $40,000 and $49,999.

The distribution of respondents by percentage of their annual gross income derived from farming is presented in Figure 8. Fifty-seven respondents (55.88%) indicated that 76 to 100 percent of their annual gross income was derived from farming, 15 respondents (14.71%) indicated that 1 to 25 percent of their annual gross income was derived from farming, 13 respondents (12.75%) indicated that 51 to 75 percent of their annual gross income was derived from farming, and 10 respondents (9.80%) indicated that 26 to 50 percent of their annual gross income was derived from farming. Only 4 respondents (3.92%) indicated that they did not earn income that was derived from farming.

The data in Table 4 depicts the distribution of respondents based on the number of acres owned and rented. The largest group consisted of 35

respondents (34.31%) who indicated that they did not own land. The second largest group was 27 respondents (26.47%) who indicated that they owned between one to 100 acres. Fourteen respondents (13.73%) indicated that they owned between 101 to 200 acres, 5 respondents (4.90%) reported they owned between 201 to 300 acres, 5 other respondents (4.90%) reported they owned 601 acres or over, 3 respondents (2.94%) reported they owned between 401 and 500 acres, and 2 respondents (1.96%) reported they owned between 301 and 400 acres. Only one respondent (.98%) indicated that he/she owned between 501 to 600 acres.

Table 4 also presents the distribution of respondents based on the number of acres rented. The largest group consisted of 18 respondents (17.65%) who indicated that they did not rent land. The second largest group was 15 respondents (14.71%) who indicated that they rented 601 acres or over. Fourteen respondents (13.73%) indicated that they rented between 101 to 200 acres, 13 respondents (12.75%) rented between 301 to 400 acres, 12 respondents (11.76%) rented between 201 to 300 acres, 10 respondents (9.80%) rented between 401 to 500 acres, and 6 respondents (5.88%) rented between 1 to 100 acres. Only 4 respondents (3.92%) indicated that they rented between 501 to 600 acres.

Figure 9 shows the distribution of respondents by size of household. The data indicated that 52 respondents (50.98%) had 3 to 4 people, 25 respondents (24.51%) had 1 to 2 people, and 21 respondents (20.59%) had 5 to 6 people. Only one respondent indicated that he/she had 7 to 8 people in the household.

Table 4. Distribution of respondents by the number of acres owned and rented (N = 102)

Acres	Frequency distribution			
	owned		rented	
	N	%	N	%
none	35	34.31	18	17.65
1 - 100	27	26.47	6	5.88
101 - 200	14	13.73	14	13.73
201 - 300	5	4.90	12	11.76
301 - 400	2	1.96	13	12.75
401 - 500	3	2.94	10	9.80
501 - 600	1	.98	4	3.92
601 and over	5	4.90	15	14.71
not indicated	10	9.80	10	9.80
Total	102	100.00	102	100.00

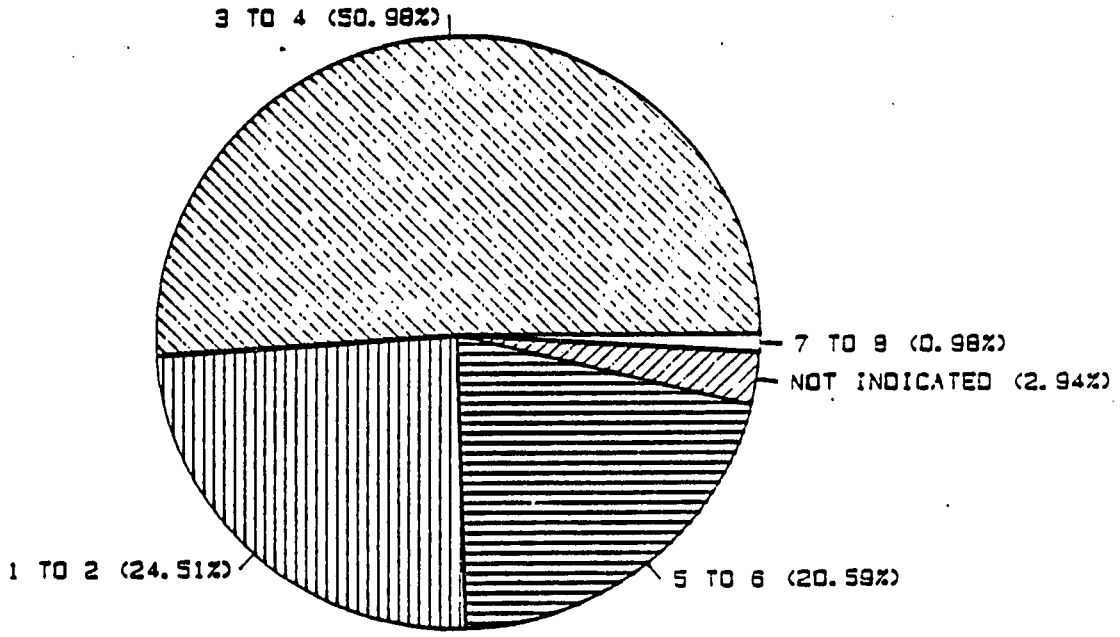


Figure 9. Distribution of respondents by the size of household (N = 102)

Types of Participation and Contact

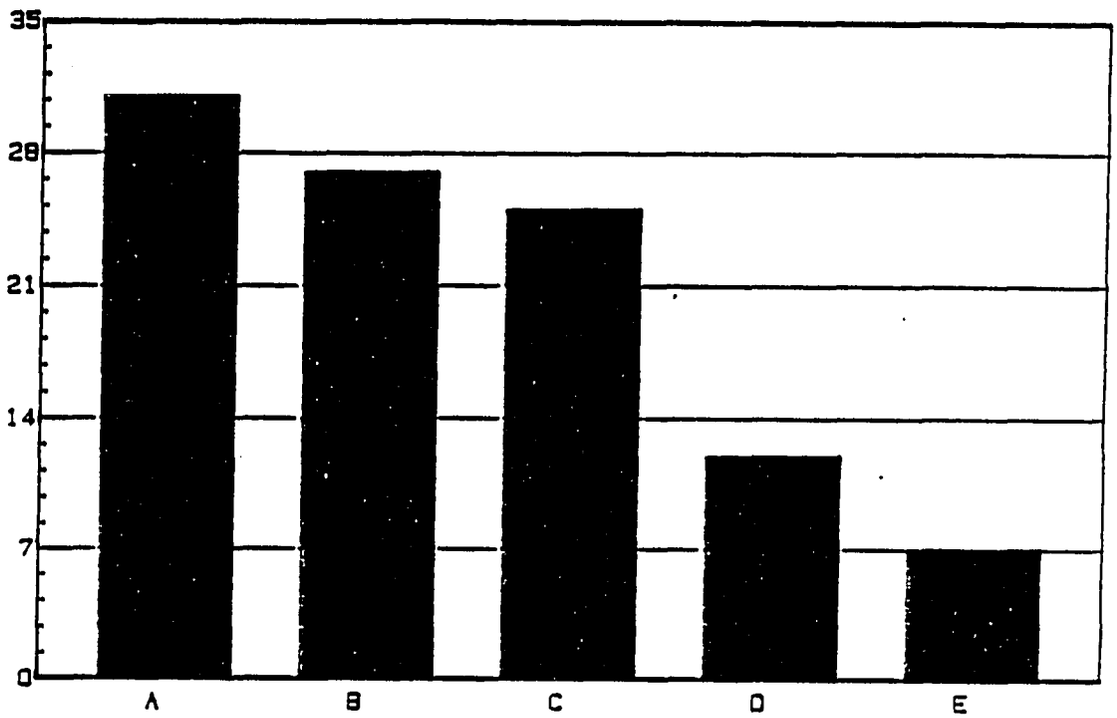
This section describes the types of participation and contact that Iowa young farmers have encountered with the Cooperative Extension Service. The source of first learning about the Cooperative Extension Service is presented in Figure 10. Approximately 30 percent of the farmers first heard of the Cooperative Extension Service through the mass media, 26.47 percent from family members, 24.51 percent from friends/ neighbors, and 11.76 percent gave a response of other, i.e., high school, college, and 4-H programs.

The distribution of farmers by use of the Cooperative Extension Service is presented in Table 5. Approximately 91 percent of the farmers had used the Cooperative Extension Service, only 6.86 percent had never used it.

The data in Table 6 depict the distribution of respondents based on the reasons for not using the services of the Cooperative Extension Service. The majority of the respondents, which consisted of 93 respondents (91.18%), had used the services of the CES. Approximately 4 percent of the respondents had not used the services because they did not feel the need for educational programs.

The respondents were asked how often they participated in meetings sponsored by the Cooperative Extension Service, and the results are shown in Table 7. The data indicated that 89 respondents (82.23%) had participated in meetings sponsored by the Cooperative Extension Service. Only 10 respondents (9.80%) had never participated in meetings sponsored by the Cooperative Extension Service.

The number and percentage of respondents by satisfaction with services/information provided by the Cooperative Extension Service is presented in Table 8. Seventy-two respondents (70.58%) indicated that they were satisfied or very satisfied, while 8 respondents (7.84%) indicated that they were dissatisfied with services/information provided by the Cooperative Extension Service. Only 18 respondents (17.64%) indicated that they had no opinion.



A = Mass media (n = 31, 30.39%)
B = Family (n = 27, 26.47%)
C = Friends/neighbors (n = 25, 24.51%)
D = Other sources (n = 12, 11.76%)
E = Not indicated (n = 7, 6.86%)

Figure 10. Distribution of respondents by the source of first learning about the Cooperative Extension Service (N = 102)

Table 5. Distribution of respondents by use of the Cooperative Extension Service (N = 102)

Use of agricultural extension	Frequency distribution N	%
Never	7	6.86
Seldom	46	45.10
Often	37	36.27
Frequent	10	9.80
Not indicated	2	1.96
Total	102	100.00

Table 6. Distribution of respondents by reasons for not using services of the Cooperative Extension Service (N = 102)

Reasons for not using services	Frequency distribution N	%
Extension educational programs offered at inconvenient time or place	0	0.00
Not aware of extension educational programs	2	1.96
Do not feel the need for extension educational programs	4	3.92
Had used the services	93	91.18
Not indicated	3	2.94
Total	102	100.00

Table 7. Distribution of respondents by participation in an extension sponsored meeting (N = 102)

Participation	Frequency distribution N	%
Never	10	9.80
Seldom	52	50.98
Often	31	30.39
Frequent	6	5.88
Not indicated	3	2.94
Total	102	100.00

Table 8. Distribution of respondents by satisfaction with services/ information provided by the Cooperative Extension Service (N = 102)

Satisfaction	Frequency distribution N	%
Very satisfied	10	9.80
Satisfied	62	60.78
No opinion	18	17.64
Dissatisfied	8	7.84
Very dissatisfied	0	0.00
Not indicated	4	3.92
Total	102	100.00

Importance of Program Planning

This section describes the perceptions of Iowa young farmers regarding the importance of program planning. The respondents were asked to rate the importance of 12 selected activities in planning extension education programs for young farmers. The statements were rated on a five-point scale where 1 indicated the minimum degree of importance and 5 indicated the maximum degree of importance. Table 9 shows the means, standard deviations, and rankings regarding level of importance of program planning as perceived by Iowa young farmers. Three activities received a rating of 4 (important) or higher. The highest rated activity was "analyze farming community situation to identify educational needs" (4.15). This activity had less variability with a standard deviation of .86. The second highest rated activity was "understand and provide educational programs to meet educational needs" (4.08). The third highest rated activity dealt with the planning and preparing of educational programs (4.03). This activity also had the least variability with a standard deviation of .85. The nine remaining activities were rated between 3.44 and 3.97.

On the five-point scale used in this study, the 12 activities of program planning were confirmed by the respondents to be important. As a group, the respondents rated these activities above 3.00, a rating of "some" or above in importance.

The null hypothesis tested in this section was stated as follows:

1. There are no significant differences in the the perceptions of Iowa young farmers regarding the level of importance of

Table 9. Means, standard deviations, and rankings regarding level of importance of program planning as perceived by Iowa young farmers (N= 102)

Rank	Activities	Valid cases	Mean	S.D.
1	Analyze farming community situation to identify educational needs	102	4.15	.86
2	Understand and provide educational programs to meet educational needs	100	4.08	.87
3	Plan and prepare educational activities	100	4.03	.85
4	Determine priorities of community needs	101	3.97	.85
5	Review past programs to identify their strengths and weaknesses	102	3.90	.90
6	Train county extension council to perform their jobs	98	3.87	1.05
7	Identify community resources, facilities and services to assist with extension programs	101	3.80	.88
8	Plan practical learning activities for target audiences	100	3.79	.95
9	Identify audience for specific programs	100	3.77	.96
10	Identify and involve appropriate community leaders in the program development process	101	3.69	.97
11	Plan activities to help individual clientele with problems	99	3.65	.96
12	Involve county extension council in the program development process	101	3.44	.99

agricultural program planning in the Cooperative Extension Service when grouped according to selected occupational and demographic characteristics.

The one-way analysis of variance test was used to determine if significant differences existed in the level of importance when Iowa young farmers were grouped by selected demographic variables: age, educational level, gross income level derived from all sources, and gross income level derived from farming. The Scheffé test was performed to locate the sources of differences when significance (.05 level) was found.

Table 10 shows the analysis of variance on the level of importance of program planning when Iowa young farmers are grouped by age. Only two significant differences were found in the level of importance concerning program planning. The results of Scheffé tests at the .05 level, indicated that the first significant difference was between group 1 (19 to 29), and both groups 2 (30 to 39) and 3 (40 or over). It was concluded that farmers between ages 19 to 39 rated the activity "analyze farming community situation to identify educational needs" significantly higher in importance. The second significant difference was also between group 1, and both 2 and 3. The data show that farmers between ages 19 to 39 (group 1) rated the activity "identify community resources and services to assist with extension programs" significantly higher in importance. The remaining activities were rated similarly (as evidenced by no significant differences at the .05 level) by all age groups. The findings suggest that, for the most part, there are no significant

differences in the level of importance of program planning.

Table 11 shows the results of the one-way analysis of variance on the level of importance of program planning when Iowa young farmers are grouped by level of education. No significant differences were detected indicating that regardless of the level of education completed, the responses to the importance of planning were similar. Therefore, it was concluded that planning is important.

Table 12 presents the results of the one-way analysis of variance on the level of importance of program planning when Iowa young farmers are grouped by the amount of annual gross income derived from all sources. A highly significant difference, significant at the .01 level, was found in the level of importance concerning reviewing past programs to identify their strength and weaknesses. The Scheffé test revealed that group 5 ($40,000 to $49,999) respondents rated this activity significantly lower than groups 1, 3 and 6. The remaining activities were rated similarly by all groups. The findings suggest that, for the most part, there are no significant differences in the level of importance in program planning among Iowa young farmers with different levels of income. Program planning is important to all income levels.

Table 13 presents the outcomes of the one-way analysis of variance on the level of importance of program planning by amount of income drived from farming. No significant differences were detected, indicating that regardless of the amount of income from farming, the responses to the importance of program planning were similar. Medium to high responses indicated that program planning is important.

Table 10. Analysis of variance regarding the level of importance of program planning when Iowa young farmers are grouped by age

Activities	Age of farmers 1: 19 to 29 n	Mean	S.D.	2: 30 to 39 n	Mean	S.D.	3: 40 or over n	Mean	S.D.	F-ratio	F-prob.
Involve county extension council in program development	47	3.48	.85	45	3.40	.96	7	3.14	1.21	.44	.639
Identify and involve appropriate community leaders	47	3.68	.95	45	3.75	.98	7	3.28	1.25	.68	.506
Analyze farming community situation to identify needs	48	4.39	.73	45	4.00	.79	7	3.57	1.61	4.37*	.015
Identify community resources	48	4.04	.77	44	3.65	.77	7	3.14	1.67	4.54*	.013
Review past programs to identify their strengths and weaknesses	48	4.06	.72	45	3.77	.95	7	3.42	1.51	2.15	.121
Determine priorities of community needs	47	4.08	.77	45	3.97	.75	7	3.42	1.61	1.85	.162
Identify audience for specific programs	47	3.89	.86	44	3.77	.85	7	3.14	1.46	2.07	.131
Train county extension council to perform their jobs	46	4.06	1.08	43	3.74	.97	7	3.28	1.25	2.18	.117
Understand and provide educational programs to meet educational needs	47	4.16	.75	44	4.09	.83	7	3.42	1.16	2.12	.124
Plan and prepare educational activities	47	4.12	.74	44	4.00	.80	7	4.42	1.61	2.07	.131

* Significant at .05 level.

Table 10. continued

Activities	Age of farmers 1: 19 to 29 n	Mean	S.D.	2: 30 to 39 n	Mean	S.D.	3: 40 or over n	Mean	S.D.	F-ratio	F-prob.
Plan practical learning activities	48	3.79	.87	44	3.86	.85	6	3.66	1.75	.15	.860
Plan activities to help individual clientele with problems.	47	3.57	.99	44	3.75	.83	6	3.50	1.64	.44	.642

Table 11. Analysis of variance regarding the level of importance of program planning when Iowa young farmers are grouped by level of education

Activities	Level of education: Group 1 n	Mean	S.D.	Group 2 n	Mean	S.D.	Group 3 n	Mean	S.D.	Group 4[a] n	Mean	S.D.	F-ratio	F-prob.
Involve county extension council in program development	27	3.29	.95	29	3.51	.87	16	3.68	.70	29	3.37	1.08	.68	.560
Identify and involve appropriate community leaders	27	3.29	1.10	29	3.75	1.02	16	4.00	.51	29	3.82	.92	2.32	.079
Analyze farming community situation to identify needs	27	3.96	1.09	30	4.36	.66	16	4.50	.73	29	3.93	.79	2.66	.051

[a]Group 1 = Grade 1 to 12.
Group 2 = Some college or technical school.
Group 3 = Associate degree.
Group 4 - Bachelor's degree or above.

Table 11. continued

Activities	Level of education								F-ratio	F-prob.
	Group 1		Group 2		Group 3		Group 4[a]			
	n	Mean / S.D.	n	Mean / S.D.	n	Mean / S.D.	n	Mean / S.D.		
Identify community resources	26	3.65 / .93	30	4.06 / .69	16	3.81 / .91	29	3.65 / .97	1.42	.239
Review past programs to identify their strengths and weaknesses	27	3.85 / 1.02	30	4.16 / .83	16	4.00 / .63	29	3.62 / .94	1.92	.130
Determine priorities of community needs	27	3.92 / .95	30	4.03 / .88	16	4.12 / .61	28	3.85 / .84	.41	.745
Identify audience for specific programs	27	3.66 / 1.03	30	3.86 / .86	16	3.81 / 1.04	27	3.74 / .98	.21	.883
Train county extension council to perform their jobs	26	3.84 / 1.08	29	4.13 / .95	16	4.00 / .73	27	3.55 / 1.25	1.52	.213
Understand and provide educational programs to meet educational needs	27	4.00 / .96	30	4.16 / .83	16	4.25 / .68	27	3.96 / .93	.53	.662
Plan and prepare educational activities	27	3.85 / .90	30	4.10 / .84	16	4.31 / .60	27	3.96 / .93	1.09	.357
Plan practical learning activities	27	3.44 / .89	30	4.13 / .81	16	4.06 / .68	27	3.59 / 1.15	3.53	.017
Plan activities to help individual clientele with problems	27	3.66 / .96	29	3.75 / .95	16	3.62 / .80	27	3.55 / 1.08	.21	.889

Table 12. Analysis of variance regarding the level of importance of program planning when Iowa young farmers are grouped by amount of annual gross income derived from all sources

Activities	Gross income						F-ratio	F-prob.
	Group 1	Group 2	Group 3	Group 4	Group 5	Group 6[a]		
	n Mean S.D.	n Mean S.D.	n Mean S.D.	n Mean S.D.	n Mean S.D.	n Mean S.D.		
Involve county extension council in program development	7 3.42 .78	15 3.80 .56	22 3.54 1.14	9 3.44 .72	4 2.50 .57	37 3.29 .84	1.70	.140
Identify and involve appropriate community leaders	7 3.28 1.38	15 3.93 .59	22 3.72 1.24	9 3.66 .86	4 3.25 1.25	37 3.70 .77	.61	.687
Analyze farming community situation to identify needs	7 4.28 .75	15 4.40 .73	22 4.09 .97	9 4.22 .83	4 3.25 .95	37 4.18 .73	1.33	.258
Identify community resources	7 4.00 .57	14 3.71 .82	22 3.81 1.09	9 3.88 .78	4 3.25 1.50	37 3.81 .65	.45	.805
Review past programs to identify their strengths and weaknesses	7 4.28 .48	15 3.66 .72	22 4.22 .75	9 3.55 .88	4 2.25 .50	37 3.91 .82	5.41**	.0002
Determine priorities of community needs	7 4.14 .69	15 4.06 .88	21 4.04 .92	9 3.77 .66	4 3.75 1.25	37 4.00 .74	.28	.922

Identify audience for specific programs	7	4.14 / .69	15	3.53 / .99	21	4.19 / .87	9	3.55 / .72	4	3.25 / 1.50	36	3.69 / .78	1.92	0.98
Train county extension council to perform their jobs	7	4.57 / .53	14	4.00 / 1.17	21	4.04 / .86	9	3.88 / 1.05	4	3.25 / 1.25	36	3.69 / 1.09	1.31	.265
Understand and provide educational programs to meet educational needs	7	4.28 / .75	15	4.13 / .63	21	4.33 / .79	9	4.11 / .78	4	3.75 / 1.25	36	3.91 / .90	.88	.497
Plan and prepare educational activities	7	4.28 / .48	15	4.13 / .74	21	4.28 / .78	9	3.77 / .66	4	3.75 / 1.50	36	3.88 / .85	1.07	.378
Plan practical learning activities	7	3.85 / .69	15	4.00 / .75	21	3.80 / .87	9	3.66 / .50	4	3.50 / 1.75	36	3.75 / .93	.31	.904
Plan activities to help individual clientele with problems	7	3.57 / 1.13	14	4.00 / .78	21	3.71 / 1.10	9	3.88 / .78	4	3.25 / .95	36	3.47 / .87	.94	.458

[a]Group 1 = $ 0 - 9,999
Group 2 = 10 - 19,999
Group 3 = 20 - 29,999
Group 4 = 30 - 39,999
Group 5 = 40 - 49,999
Group 6 = 50 or over.

**Significant at .01 level.

Table 13. Analysis of variance regarding the level of importance of program planning when Iowa young farmers are grouped by amount of income derived from farming

Activities	Agricutural income					F-ratio	F-prob.
	Group 1 n Mean / S.D.	Group 2 n Mean / S.D.	Group 3 n Mean / S.D.	Group 4 n Mean / S.D.	Group 5[a] n Mean / S.D		
Involve county extension council in program development	15 3.53 / 1.06	10 3.10 / .87	13 3.23 / .72	57 3.50 / .74	4 3.25 / .95	.64	.632
Identify and involve appropriate community leaders	15 4.00 / .75	10 3.30 / 1.33	13 3.61 / .65	57 3.71 / .97	4 3.25 / 1.70	.99	.416
Analyze farming community situation to identify needs	15 4.00 / 1.00	10 4.30 / .94	13 3.92 / .86	57 4.22 / .84	4 4.25 / .95	.51	.727
Identify community resources	15 3.86 / 1.12	10 3.90 / .99	13 3.38 / .86	56 3.85 / .81	4 4.00 / .81	.85	.492
Review past programs to identify their strengths and weaknesses	15 3.73 / 1.03	10 3.80 / .63	13 3.69 / .94	57 4.01 / .93	4 3.50 / .57	.73	.567
Determine priorities of community needs	15 3.73 / 1.14	10 4.00 / .47	13 3.84 / .68	56 4.07 / .87	4 4.25 / .50	.63	.635
Identify audience for specific programs	15 4.06 / 1.03	10 3.70 / 1.05	12 3.33 / .88	56 3.83 / .88	4 3.50 / .57	1.23	.301

Train county extension council to perform their jobs	15 4.00 / 1.19	10 4.00 / .81	12 3.91 / .79	55 3.81 / 1.12	4 3.50 / 1.29	.24	.912
Understand and provide educational programs to meet educational needs	15 3.73 / 1.16	10 4.20 / .78	12 4.00 / .73	56 4.10 / .84	4 4.75 / .50	1.25	.293
Plan and prepare educational activities	15 3.80 / 1.08	10 4.10 / .56	12 3.75 / .75	56 4.10 / .86	4 4.25 / .95	.76	.554
Plan practical learning activities	14 3.64 / .74	10 3.60 / .84	12 3.58 / .90	57 3.89 / .99	4 4.25 / .50	.76	.548
Plan activities to help individual clientele with problems	14 3.85 / .94	10 3.30 / .82	12 3.83 / .83	56 3.62 / 1.03	4 3.75 / .95	.59	.664

[a]Group 1 = 1 to 25%
Group 2 = 26 to 50%
Group 3 = 51 to 75%
Group 4 = 76 to 100%
Group 5 = None.

The t-test procedure was used to calculate t-values for the difference in responses when young farmers were grouped by sex and type of farmers (full-time versus part-time farmers). A comparison of the mean ratings between male and female respondents is shown in Table 14. The findings indicated that five significant differences were found in the level of importance regarding program planning. The first three differences were detected at the .01 level concerning the following activities: determine priorities of community needs, understand and provide educational programs, and plan and prepare educational activities. The two remaining differences were detected at the .05 level concerning the following activities: identify community resources and plan practical learning activities for target audiences. In each of these activities, female respondents indicated higher levels of importance than male respondents.

Table 15 presents a comparison of the level of importance regarding program planning when Iowa young farmers are grouped by full-time and part-time farmers. No significant differences were detected, indicating that regardless of the type of farmer, the responses to the importance of planning were similar. Some to high responses indicated that program planning is important.

Importance of Educational Program Areas

This section describes the perceptions of Iowa young farmers regarding importance of program areas. The respondents were asked to rate the importance of each program area in meeting the educational

Table 14. A comparison of the level of importance regarding program planning when Iowa young farmers are grouped by sex

Activities	Sex of farmers: Male n	Male Mean / S.D.	Female n	Female Mean / S.D.	t-value	prob.
Involve county extension council in program development	79	3.35 / 0.93	18	3.72 / 0.89	-1.52	.132
Identify and involve appropriate community leaders	79	3.62 / 0.99	18	3.94 / 0.93	-1.26	.209
Analyze farming community situation to identify needs	80	4.13 / 0.88	18	4.22 / 0.80	-0.37	.710
Identify community resources	80	3.70 / 0.87	17	4.23 / 0.83	-2.30*	.023
Review past programs to identify their strengths and weaknesses	80	3.90 / 0.88	18	3.94 / 1.05	-0.19	.852
Determine priorities of community needs	79	3.86 / 0.85	18	4.50 / 0.61	-2.98**	.004
Identify audience for specific needs	78	3.66 / 0.97	18	4.11 / 0.83	-1.79	.077
Train county extension council to perform their jobs	77	3.83 / 1.04	17	4.00 / 1.17	-0.59	.556
Understand and provide educational programs to meet educational needs	78	3.96 / 0.88	18	4.55 / 0.61	-2.68**	.009

Plan and prepare educational activities	78	3.92 / 0.87	18	4.50 / 0.61	-2.63**	.010
Plan practical learning activities	79	3.69 / 0.69	18	4.22 / 0.87	-2.12*	.037
Plan activities to help individual clientele with problems	79	3.58 / 0.95	17	3.82 / 0.95	-0.95	.347

*Significant at .05 level.
**Significant at .01 level.

Table 15. A comparison of the level of importance regarding program planning when Iowa young farmers are grouped by full-time and part-time farmer

Activities	Type of farmer: Full-time farmers n	Mean / S.D.	Type of farmer: Part-time farmers n	Mean / S.D.	t-value	prob.
Involve county extension council in program development	64	3.45 / .81	27	3.40 / 1.08	0.22	.826
Identify and involve appropriate community leaders	64	3.68 / 0.92	27	3.55 / 1.15	0.58	.565
Analyze farming community situation to identify needs	64	4.21 / 0.78	27	4.11 / 1.12	0.45	.652
Identify community resources	64	3.75 / 0.75	26	3.96 / 1.18	-0.84	.404
Review past programs to idenntify their strengths and weaknesses	64	4.04 / 0.78	27	3.62 / 1.14	1.73	.093
Determine priorities of community needs	64	3.98 / 0.78	26	3.96 / 1.07	0.10	.922
Identify audience for specific programs	63	3.73 / 0.86	26	3.96 / 1.14	-1.04	.302
Train county extension council to perform their jobs	63	3.96 / 0.95	25	3.76 / 1.23	0.85	.398
Understand and provide educational programs to meet educational needs	63	4.09 / 0.75	26	3.96 / 0.99	0.69	.493

Plan and prepare educational activities	63 $\frac{4.01}{0.75}$	26 $\frac{4.07}{0.97}$	-0.32	.751
Plan practical learning activities	63 $\frac{3.79}{0.93}$	26 $\frac{3.65}{0.93}$	0.64	.523
Plan activities to help individual clientele with problems	62 $\frac{3.69}{0.89}$	26 $\frac{3.53}{1.20}$	0.67	.508

needs of young farmers. The statements were rated on a five-point scale with 1 indicating a minimum degree of importance and 5 indicating a maximum degree of importance.

Table 16 shows the means, standard deviations, and rankings of importance ratings for the eight topics in the area of livestock production. Four topics received a rating of 4 or above. The highest rated topic was "production records" (4.16), followed closely by "marketing of livestock" (4.14). The third highest rated topic was "production management" (4.04) and the fourth highest rated topic was "health and diseases of livestock" (4.01). The four remaining topics were rated between 3.59 and 3.87.

Table 17 presents the means, standard deviations, and rankings regarding level of importance of selected topics in crop production as perceived by Iowa young farmers. The data indicated that five topics received a rating of 4 or above. These topics were as follows: (1) marketing of crops (4.26), (2) production records (4.14), (3) production management (4.12), (4) chemical safety (4.06), and (5) soil fertility (4.01). The four remaining topics were rated between 3.63 and 3.91.

Table 18 presents the means, standard deviations, and rankings regarding level of importance of selected topics in agricultural mechanics as perceived by Iowa young farmers. The data indicated that three topics received a rating of 3.81 or above. These topics were as follows: (1) machinery maintenance (3.83), (2) machinery calibration (3.82), and (3) safety (3.81). The remaining five topics were rated topics were rated between 2.86 and 3.40.

Table 16. Means, standard deviations, and rankings regarding level of importance of selected topics in livestock production as perceived by Iowa young farmers (N = 102)

Rank	Topic	Not applicable	Valid cases	Mean	S.D.
1	Production Records	6	93	4.16	.86
2	Marketing of Livestock	7	94	4.14	.85
3	Production Management	6	93	4.04	.79
4	Health and Diseases	6	95	4.01	.86
5	Herd Records	6	94	3.87	.91
6	Feeds and Feeding	6	94	3.86	.87
7	Breeding and Reproduction	6	93	3.81	.92
8	Use of Computer	6	94	3.59	1.07

Table 17. Means, standard deviations, and rankings regarding level of importance of selected topics in crop production as perceived by Iowa young farmers (N = 102)

Rank	Topic	Not applicable	Valid cases	Mean	S.D.
1	Marketing of Crops	0	98	4.26	.80
2	Production Records	0	99	4.14	.76
3	Production Management	0	98	4.12	.75
4	Chemical Safety	0	99	4.06	.91
5	Soil Fertility	0	99	4.01	.95
6	Pests and Diseases of Crops	0	99	3.91	.92
7	Crop Pesticides	0	99	3.78	.97
8	New Crop Varieties	0	98	3.70	.93
9	Use of Computers	0	98	3.63	1.05

Table 18. Means, standard deviations, and rankings regarding level of importance of selected topics in agricultural mechanics as perceived by Iowa young farmers (N = 102)

Rank	Topic	Not applicable	Valid cases	Mean	S.D.
1	Machinery Maintenance	3	97	3.83	1.01
2	Machinery Calibration	3	97	3.82	.97
3	Safety	4	96	3.81	1.11
4	Electric Power	5	95	3.40	.93
5	Facilities Construction	4	96	3.39	.97
6	Concrete	5	95	3.01	.97
7	Surveying	5	94	2.90	1.05
8	Masonary	6	94	2.86	.97

Table 19. Means, standard deviations, and rankings regarding level of importance of selected topics in horticulture as perceived by Iowa young farmers (N = 102)

Rank	Topic	Not applicable	Valid cases	Mean	S.D.
1	Vegetable Production	17	82	3.12	1.12
2	Fruit Production	18	80	3.10	1.15
3	Landscaping	19	81	2.86	1.11
4	Turf Management	22	78	2.78	1.15

Table 20. Means, standard deviations, and rankings regarding level of importance of selected topics in general agriculture as perceived by Iowa young farmers (N = 102)

Rank	Topic	Not applicable	Valid cases	Mean	S.D.
1	Financial Planning	2	98	4.41	.70
2	Agricultural Credit	2	98	4.29	.84
3	Decision Making	2	98	4.18	.80
4	Leadership in Agriculture	0	100	3.78	.97
5	Use of Computer	3	97	3.68	1.11

Table 19 indicates the results of importance ratings in horticulture. The highest rated topics were vegetable production (3.12) and fruit production (3.10). The remaining two topics received a rating of 2.86 and 2.78.

According to the data in Table 20, three topics in general agriculture received a rating of 4.18 or above. These topics were as follows: (1) financial planning (4.41), (2) agricultural credit (4.29), and (3) decision making (4.18). The remaining two topics received a rating of 3.78 and 3.68.

In summary, on the five-point scale used in this study, most of the topics in the five broad areas were confirmed by the respondents to be important. As a group, they rated most of these topics 3 or above, a rating of "some" or above in importance.

The null hypothesis tested in this section was stated as follows:

2. There are no significant differences in the perceptions of Iowa young farmers regarding the level of importance of agricultural program areas provided by the Cooperative Extension Service when grouped according to selected occupational and demographic characteristics.

Table 21 shows the analysis of variance on the level of importance of program areas when Iowa young farmers are grouped by age. Only two significant differences were found in the level of importance concerning program areas. The results of Scheffé tests indicated that the first significant difference (at .01 level) was between group three (40 or over) and both groups one (19 to 29) and two (30 to 39). It was

concluded that group one and two rated the topic area "livestock production" significantly higher in importance. The second significant difference (at .05 level) was between group one and three. The data show that farmers between ages 19 to 29 (group one) rated the topic area "crop production" significantly higher in importance. The remaining activities were rated similarly (as evidenced by no significant differences at the .05 level) by all age groups. The findings suggest that, for the most part, there were no significant differences in the level of importance of program areas.

Table 22 shows the results of the one-way analysis of variance regarding the level of importance of program areas when Iowa young farmers are grouped by level of education. No significant differences were detected, indicating that regardless of the level of education, the responses to the agricultural topic area were similar.

Data in Table 23 and 24 reveal that no significant difference existed in the level of importance of program areas when Iowa young farmers were grouped by amount of annual gross income derived from all sources and amount of income derived from farming. In general, the findings suggest that there were no significant differences in the level of importance of program areas among the respondents with different levels of income.

The t-test procedure was used to determine if any significant differences existed in responses when Iowa young farmers were grouped by sex and type of farmers. A comparison of the mean ratings between male and female respondents is shown in Table 25. The findings indicated that

Table 21. Analysis of variance regarding the level of importance of program areas when Iowa young farmers are grouped by age

Topic Area	Age of farmers 1: 19 to 29 n	Mean / S.D.	2: 30 to 39 n	Mean / S.D.	3: 40 or over n	Mean / S.D.	F-ratio	F-prob.
Livestock Production	46	4.09 / .59	41	3.86 / .58	6	3.18 / 1.21	5.71**	.004
Crop Production	46	4.07 / .57	45	3.92 / .59	7	3.41 / 1.25	3.30*	.040
Agricultural Mechanics	46	3.58 / .74	43	3.22 / .87	7	3.36 / 1.23	2.04	.135
Horticulture	38	3.10 / 1.03	42	2.82 / 1.09	4	3.31 / .74	.91	.406
General Agriculture	48	4.17 / .62	44	3.95 / .73	7	4.17 / .89	1.17	.313

*Significant at .05 level.
**Significant at .01 level.

Table 22. Analysis of variance regarding the level of importance of program areas when Iowa young farmers are grouped by level of education

Topic area	Level of education					
	Group 1 n Mean S.D.	Group 2 n Mean S.D.	Group 3 n Mean S.D.	Group 4[a] n Mean S.D.	F-ratio	F-prob.
Livestock Production	25 3.84 .73	30 4.07 .69	16 3.93 .57	24 3.86 .61	.70	.549
Crop production	26 3.93 .74	30 4.14 .60	15 4.04 .44	28 3.73 .68	1.99	.119
Agricultural Mechanics	26 3.31 .92	29 3.65 .80	16 3.59 .55	26 3.07 .91	2.63	.054
Horticulture	20 2.77 1.29	27 3.08 .85	15 2.76 1.12	23 3.14 .97	.72	.541
General Agriculture	27 3.89 .84	30 4.20 .66	16 4.18 .51	27 4.05 .63	1.07	.365

[a]Group 1 = Grades 1 to 12
Group 2 = Some college or technical school
Group 3 = Associate degree
Group 4 = Bachelor's degree or above.

Table 23. Analysis of variance regarding the level of importance of program areas when Iowa young farmers are grouped by amount of annual gross income derived from all sources

Topic Area	Gross income						F-ratio	F-prob.
	Group 1	Group 2	Group 3	Group 4	Group 5	Group 6[a]		
	n Mean / S.D.	n Mean / S.D.	n Mean / S.D.	n Mean / S.D.	n Mean / S.D.	n Mean / S.D.		
Livestock Production	7 3.89 / .44	13 4.23 / .63	21 4.10 / .67	9 3.80 / .32	4 3.43 / .33	33 3.84 / .56	1.89	.103
Crop Production	6 3.94 / .21	14 4.19 / .51	22 4.01 / .74	9 3.86 / .33	4 3.19 / .30	37 3.97 / .54	2.08	.075
Agricultural Mechanics	7 3.83 / .20	14 3.74 / .84	22 3.51 / .88	9 3.08 / .94	4 3.06 / .59	34 3.24 / .79	1.67	.149
Horticulture	6 3.70 / 1.52	13 3.40 / .67	22 3.23 / 1.08	7 2.60 / 1.07	4 2.37 / .72	30 2.63 / .98	2.51	.036
General Agriculture	7 4.02 / .60	15 4.37 / .53	22 4.08 / .70	9 3.68 / 1.02	4 4.00 / 1.01	36 4.02 / .61	1.18	.324

[a]Group 1 = $ 0 - 9,999
Group 2 = 10 - 19,999
Group 3 = 20 - 29,999
Group 4 = 30 - 39,999
Group 5 = 40 - 49,999
Group 6 = 50 or over.

Table 24. Analysis of variance regarding the level of importance of program areas when Iowa young farmers are grouped by amount of income derived from farming

Topic Area	Agricutural income					F-ratio	F-prob.
	Group 1 n Mean S.D.	Group 2 n Mean S.D.	Group 3 n Mean S.D.	Group 4 n Mean S.D.	Group 5[a] n Mean S.D.		
Livestock Production	13 3.95 .58	10 4.08 .51	12 3.68 .49	53 3.97 .76	4 3.81 .51	.58	.671
Crop Production	15 3.91 .56	9 4.07 .55	13 3.82 .38	56 4.01 .75	4 3.47 .48	.85	.492
Agricultural Mechanics	14 3.55 .71	10 3.80 .56	13 3.34 .59	54 3.30 .99	4 3.40 .58	.81	.518
Horticulture	13 3.38 1.07	10 3.50 1.15	11 2.62 .96	45 2.86 1.01	4 2.68 .98	1.66	.167
General Agriculture	15 4.20 .65	10 4.24 .56	12 4.05 .41	57 4.03 .79	4 4.15 .34	.31	.865

[a]Group 1 = 1 to 25%
Group 2 = 26 to 50%
Group 3 = 51 to 75%
Group 4 = 76 to 100%
Group 5 = None.

two significant differences were detected at the .05 level concerning agricultural topics in livestock production and horticulture. In each of these topic areas, female respondents indicated higher levels of importance than male respondents.

Table 26 presents a comparison of the level of importance regarding program planning when Iowa young farmers are grouped by full-time and part-time farmers. Only one significant difference was found (at the .05 level) concerning the agricultural topic in horticulture. Part-time farmers indicated higher levels of importance than full-time farmers.

Importance of Extension Methods

This section describes the perceptions of Iowa young farmers regarding importance of extension methods. The respondents were asked to rate the importance of the seventeen selected methods used by the extension service in providing assistance to young farmers. The statements were rated on a five-point scale where 1 indicated a minimum degree of importance and 5 indicated a maximum degree of importance.

Table 27 shows means, standard deviations, and rankings regarding level of importance of extension methods. The data indicated that "local community meetings" were rated highest in importance (3.82) and both newspaper and county meetings were rated (3.73) as the second highest in importance. The newsletters and demonstrations also were rated (3.72) as the third highest in importance. The twelve remaining methods were rated between 3.04 and 3.63.

On the five-point scale used in this study, the seventeen methods

Table 25. A comparison of the level of importance regarding program areas when Iowa young farmers are grouped by sex

Topic Area	Sex of farmers: Male n	Male Mean / S.D.	Female n	Female Mean / S.D.	t-value	prob.
Livestock Production	76	3.87 / .66	15	4.26 / .64	-2.10*	.038
Crop Production	79	3.93 / .60	17	4.07 / .87	-0.60	.555
Agricultural Mechanic	77	3.37 / .75	17	3.53 / 1.29	-0.49	.628
Horticulture	67	2.82 / .93	16	3.40 / 1.28	-2.08*	.041
General Agriculture	79	4.09 / .57	18	4.07 / 1.09	0.07	.945

*Significant at .05 level.

Table 26. A comparison of the level of importance regarding program areas when Iowa young farmers are grouped by full-time and part-time farmer

Topic area	Type of farmer: Full-time farmers n	Mean	S.D.	Part-time farmers n	Mean	S.D.	t-value	prob.
Livestock Production	62	3.95	.61	24	3.96	.85	-0.17	.867
Crop Production	63	4.02	.54	26	3.92	.86	0.54	.593
Agricultural Mechanics	62	3.42	.74	26	3.47	1.05	-0.21	.835
Horticulture	51	2.81	.97	24	3.41	1.12	-2.36*	.021
General Agriculture	63	4.07	.60	27	4.11	.93	-0.16	.871

*Significant at .05 level.

Table 27. Means, standard deviations, and rankings regarding level of importance of selected methods used by extension service as perceived by Iowa young farmers (N = 102)

Rank	Method	Valid cases	Mean	S.D.
1	Local community meetings	98	3.82	.92
2	Newspaper articles	99	3.73	.87
2	County meetings	97	3.73	1.00
3	Newsletters	99	3.72	.90
3	Demonstrations	98	3.72	.83
4	Bulletins	99	3.63	.92
5	Area meetings	98	3.60	.98
6	Tours	99	3.59	.85
7	Radio programs	98	3.49	.55
8	Farm visits	98	3.48	1.04
9	Television programs	98	3.45	1.02
10	Use of computer	98	3.35	1.12
11	Educational displays	98	3.31	.94
12	Self study	98	3.27	.96
13	Office conferences	98	3.09	1.00
14	State meetings	98	3.07	.88
15	Telephone conferences	98	3.04	1.04

were confirmed by the respondents to be important. As a group, they rated those methods 3 or above, a rating of "some" or above in importance.

The null hypothesis tested in this section was stated as follows:

3. There are no significant differences in the perceptions of Iowa young farmers regarding the importance of the methods of instruction used by the Cooperative Extension Service when grouped according to selected occupational and demographic characteristics.

Table 28 shows the analysis of variance on the level of importance of extension methods when Iowa young farmers are grouped by age. The findings indicated that seven significant differences existed in the perceived importance of agricultural extension methods. Farmers between ages 19 to 29 (group 1) and 30 to 39 (group 2) rated six methods significantly higher than farmers in group 3 (40 or over). The seventh significant difference was between group 1 and group 3. Farmers in group 1 rated the method "use of computer" significantly higher in importance.

Data in Table 29 reveal that no significant difference existed in the level of importance of extension methods when Iowa young farmers are grouped by level of education. The findings suggest that there were no significant differences in the level of importance of extension methods among the respondents with different levels of education.

Table 30 shows the analysis of variance on the level of importance of extension methods when Iowa young farmers are grouped by annual gross

Table 28. Analysis of variance regarding the level of importance of extension methods when Iowa young farmers are grouped by age

Method	Age of farmer 1 (19-29) n	Mean	S.D.	Age of farmer 2 (30-39) n	Mean	S.D.	Age of farmer 3 (40 or over) n	Mean	S.D.	F-ratio	F-prob.
Bulletins	46	3.67	.81	45	3.53	.91	7	3.85	1.46	.51	.600
Newsletters	46	3.78	.81	45	3.68	.92	7	3.42	1.27	.50	.607
Newspaper articles	46	3.80	.83	45	3.68	.82	7	3.42	1.39	.63	.534
Office conferences	46	3.06	1.04	44	3.18	.85	7	2.71	1.49	.54	.582
Telephone conferences	46	3.00	1.09	44	3.15	.91	7	2.28	1.11	2.24	.111
Farm visits	46	3.50	.96	44	3.59	.99	7	2.42	1.39	4.05*	.020
Tours	46	3.65	.87	45	3.66	.67	7	2.71	1.38	4.19*	.018
Demonstrations	46	3.78	.78	44	3.81	.65	7	2.71	1.49	6.03**	.003
Radio programs	46	3.67	1.03	44	3.43	.81	7	2.42	1.13	5.31**	.006
Television programs	46	3.58	1.06	44	3.45	.87	7	2.42	1.13	4.18*	.018
Educational display	45	3.47	.91	44	3.22	.88	7	2.71	1.38	2.32	.103
State meetings	46	3.26	.82	44	3.08	.86	7	2.42	1.13	3.16	.046

*Significant at .05 level.
**Significant at .01 level.

Table 28. continued

Method	Age of farmer 1 (19-29) n	Mean	S.D.	2 (30-39) n	Mean	S.D.	3 (40 or over) n	Mean	S.D.	F-ratio	F-prob.
Area meetings	46	3.76	.76	44	3.61	1.01	7	2.42	1.39	6.15**	.003
County meetings	45	3.88	.77	44	3.68	1.05	7	3.00	1.73	2.51	.086
Local community meetings	46	3.93	.77	44	3.77	.88	7	3.71	1.70	.43	.649
Self study	46	2.41	.95	44	3.20	.85	7	2.57	1.27	2.59	.079
Use of computer	46	3.54	1.20	44	3.27	.94	7	2.42	1.13	3.32*	.040

Table 29. Analysis of variance regarding the level of importance of extension methods when Iowa young farmers are grouped by level of education

Method	Level of education				F-ratio	F-prob.
	Group 1	Group 2	Group 3	Group 4[a]		
	n Mean / S.D.	n Mean / S.D.	n Mean / S.D.	n Mean / S.D.		
Bulletins	27 3.40 / 1.00	29 3.58 / .86	15 3.66 / .81	28 3.89 / .91	1.33	.268
Newsletters	27 3.70 / .95	29 3.79 / .86	15 3.93 / .88	28 3.57 / .92	.59	.622
Newspaper articles	27 3.48 / .97	29 3.79 / .86	15 3.86 / .83	28 3.85 / .80	1.09	.355
Office conferences	27 3.07 / .91	28 3.14 / 1.07	15 3.40 / 1.05	28 2.89 / .99	.85	.466
Telephone conferences	27 2.92 / 1.07	29 2.89 / .93	15 3.33 / 1.23	27 3.14 / 1.02	.77	.510
Farm visits	27 3.40 / 1.15	29 3.55 / 1.08	15 3.46 / .99	27 3.48 / .97	.08	.960
Tours	27 3.37 / 1.07	29 3.72 / .64	15 3.60 / 1.05	28 3.67 / .66	.92	.431
Demonstrations	27 3.37 / 1.07	29 3.82 / .75	15 3.93 / .70	27 3.85 / .60	2.38	.073

Radio programs	27 3.22 / 1.15	29 3.55 / .82	15 3.73 / 1.22	27 3.55 / .84	1.02	.386
Television programs	27 3.22 / 1.15	29 3.51 / .82	15 3.80 / 1.14	27 3.44 / 1.01	1.06	.368
Educational displays	27 3.07 / 1.07	29 3.51 / .82	15 3.46 / 1.18	27 3.25 / .76	1.18	.319
State meetings	27 3.03 / 1.01	29 3.27 / .92	15 3.06 / .70	27 2.88 / .80	.90	.442
Area meetings	27 3.48 / 1.05	29 3.82 / .96	16 3.93 / .59	27 3.29 / 1.03	2.16	.097
County meetings	26 3.46 / 1.06	29 3.96 / .82	15 3.80 / .86	27 3.70 / 1.17	1.18	.319
Local community meetings	27 3.70 / 1.03	29 3.89 / .85	15 4.06 / .70	27 3.74 / .98	.62	.598
Self study	27 3.25 / 1.02	29 3.37 / .97	15 3.13 / .83	27 3.25 / .98	.22	.880
Use of computer	27 3.00 / 1.20	29 3.41 / 1.18	15 3.60 / 1.05	27 3.51 / .97	1.36	.257

[a]Group 1 = Grades 1 to 12
Group 2 = Some college or technical school
Group 3 = Associate degree
Group 4 = Bachelor's degree or above.

income derived from all sources. Only one significant difference (at .01 level) was found in the level of importance concerning extension methods. The results of Scheffé tests indicated that group 5 ($40,000 to 49,000) respondents rated the method "television programs" significantly lower than group 2 ($10,000 to 19,999). The remaining methods were rated similarly as evidenced by no significant differences by all income groups.

Data in Table 31 reveal that no significant differences existed in the level of importance of extension methods when Iowa young farmers are grouped by amount of income derived from farming.

The t-test procedure was used to determine if any significant differences existed in responses when Iowa young farmers were grouped by sex and type of farmer (full-time versus part-time). A comparison of the mean ratings between male and female respondents is shown in Table 32. Seven significant differences were found in the level of importance regarding extension methods. Two of these differences were detected at the .01 level concerning the two methods of state meetings and area meetings. The remaining five differences were detected at the .05 level concerning the following methods: office conferences, tours, demonstrations, educational displays, and use of the computer. In each of these methods, female respondents indicated higher levels of importance than male respondents.

Table 33 presents a comparison of the level of importance regarding extension methods when Iowa young farmers are grouped by full-time and part-time farmer. No significant differences were detected, indicating

that regardless of the type of farmer, the responses to the importance of extension methods were similar.

Table 30. Analysis of variance regarding the level of importance of extension methods when Iowa young farmers are grouped by amount of annual gross income derived from all sources

Method	Gross income						F-ratio	F-prob.
	Group 1	Group 2	Group 3	Group 4	Group 5	Group 6[a]		
	n Mean S.D.	n Mean S.D.	n Mean S.D.	n Mean S.D.	n Mean S.D.	n Mean S.D.		
Bulletins	7 3.42 .97	14 3.50 .94	22 3.77 1.06	9 3.55 .72	4 3.00 .81	37 3.75 .79	.78	.560
Newsletters	7 3.42 .97	14 3.78 1.05	22 4.00 .87	9 3.33 .70	4 3.00 .81	37 3.78 .78	1.60	.167
Newspaper articles	7 3.57 .97	14 3.85 .86	22 3.77 1.06	9 3.55 .52	4 3.00 .81	37 3.86 .71	.97	.436
Office conferences	7 3.14 .37	14 3.14 1.23	22 3.18 1.00	9 3.22 .97	4 2.00 .81	36 2.94 .82	1.28	.278
Telephone conferences	7 2.85 .89	14 3.57 1.22	22 2.95 .99	9 3.22 1.09	4 2.25 .50	36 2.86 .89	1.67	.150
Farm visits	7 3.42 .97	14 3.78 .97	22 3.59 1.00	9 3.77 .66	4 3.00 1.14	36 3.25 1.05	1.02	.410
Tours	7 3.57 .53	14 4.00 .87	22 3.63 .72	9 3.77 .66	4 3.00 .81	37 3.48 .93	1.30	.270
Demonstrations	7 3.71 .48	14 4.21 .89	22 3.81 .79	9 4.00 .70	4 3.00 .81	36 3.55 .77	2.41	.042

Radio programs	7	3.14 / .89	14	4.14 / .86	22	3.54 / .85	9	3.11 / 1.26	4	3.50 / 1.00	36	3.38 / .96	1.86	.108
Television programs	7	3.71 / .95	14	4.00 / 1.03	22	3.63 / .72	9	3.77 / .97	4	2.00 / .81	36	3.16 / .97	4.17**	.001
Educational displays	7	3.42 / .78	14	3.71 / .91	22	3.54 / 1.14	9	3.33 / .70	4	2.75 / .95	36	3.02 / .81	1.85	.111
State meetings	7	3.14 / .69	14	3.21 / 1.05	22	3.13 / 1.03	9	3.44 / .52	4	2.25 / .50	36	3.00 / .79	1.20	.315
Area meetings	7	3.85 / .69	14	3.85 / .77	22	3.77 / .97	9	3.77 / .66	4	2.50 / .57	36	3.44 / 1.10	1.77	.126
County meetings	7	4.00 / .81	14	3.92 / .82	22	3.77 / .92	9	4.11 / .60	4	3.25 / 1.50	35	3.57 / 1.11	.85	.513
Local community meetings	7	4.14 / .89	14	4.00 / .87	22	3.90 / .81	9	4.11 / .60	4	3.50 / 1.29	36	3.72 / .94	.67	.645
Self study	7	3.00 / .81	14	3.78 / .97	22	3.31 / .83	9	3.33 / 1.00	4	2.50 / 1.00	34	3.11 / .85	1.92	.098
Use of computers	7	3.42 / 1.39	14	3.85 / 1.09	22	3.54 / 1.26	9	3.33 / .70	4	2.50 / .57	36	3.08 / .96	1.73	.136

[a]Group 1 = $ 0 - 9,999
Group 2 = 10 - 19,999
Group 3 = 20 - 29,999
Group 4 = 30 - 39,999
Group 5 = 40 - 49,999
Group 6 = 50 or over.
**Significant at .01 level.

Table 31. Analysis of variance regarding the level of importance of extension methods when Iowa young farmers are grouped by amount of income derived from farming

Method	Agricutural income					F-ratio	F-prob.
	Group 1 n Mean S.D.	Group 2 n Mean S.D.	Group 3 n Mean S.D.	Group 4 n Mean S.D.	Group 5[a] n Mean S.D.		
Bulletins	14 3.42 1.01	10 3.60 .96	13 3.76 .72	57 3.66 .91	4 3.25 1.25	.43	.785
Newsletters	14 3.42 .93	10 3.90 .87	13 3.76 .72	57 3.82 .88	4 2.50 .57	2.70	.035
Newspaper articles	14 3.64 .92	10 3.80 1.03	13 3.76 .59	57 3.75 .89	4 3.25 .95	.36	.835
Office conferences	14 3.42 1.22	10 3.00 1.33	12 3.00 .85	57 3.03 .92	4 2.75 .50	.59	.666
Telephone conferences	14 3.14 1.09	10 2.50 1.35	12 3.00 .95	59 3.08 .96	4 3.00 1.15	.74	.566
Farm visits	14 3.92 .91	10 2.90 1.28	12 3.16 .93	57 3.50 1.03	4 3.50 .57	1.75	.144
Tours	13 3.92 .73	10 3.50 1.17	13 3.46 .66	57 3.56 .88	4 3.50 .57	.66	.621
Demonstrations	14 3.92 .61	10 3.80 .78	12 3.58 .66	57 3.66 .93	4 4.00 .81	.47	.752

Radio programs	14 3.50 / 1.09	10 3.50 / 1.26	12 3.50 / 1.00	57 3.52 / .92	4 2.50 / .57	1.01	.404
Television programs	14 3.85 / .86	10 3.50 / 1.35	12 3.41 / .90	57 3.35 / 1.02	4 3.25 / .95	.73	.573
Educational displays	14 3.21 / .80	10 3.30 / 1.25	12 3.25 / 1.05	57 3.35 / .93	4 3.25 / .95	.07	.989
State meetings	14 2.85 / .86	10 3.20 / .91	12 2.91 / .79	57 3.14 / .93	4 3.25 / .50	.46	.763
Area meetings	14 3.35 / 1.27	10 3.30 / .67	12 3.50 / .52	57 3.77 / 1.01	4 3.00 / .81	1.29	.278
County meetings	14 3.71 / 1.26	10 3.50 / .52	12 3.50 / .79	56 3.83 / 1.04	4 3.50 / 1.29	.49	.742
Local community meetings	14 3.85 / 1.23	10 3.60 / .69	12 3.41 / .66	57 3.96 / .84	4 4.00 / 1.31	1.14	.342
Self study	14 3.21 / .57	10 3.40 / .84	12 3.00 / .73	57 3.38 / 1.03	4 2.00 / .81	2.43	.052
Use of computer	14 3.86 / .84	10 3.00 / 1.33	12 3.33 / 1.15	57 3.29 / 1.14	4 3.75 / .95	.63	.639

[a]Group 1 = 1 to 25%
Group 2 = 26 to 50%
Group 3 = 51 to 75%
Group 4 = 76 to 100%
Group 5 = None.

Table 32. A comparison of the level of importance regarding extension methods when Iowa young farmers are grouped by sex

Method	Sex of farmers: Male n	Male Mean / S.D.	Female n	Female Mean / S.D.	t-value	prob.
Bulletins	78	3.60 / 0.91	18	3.77 / 0.87	-0.74	.463
Newsletters	78	3.67 / 0.91	18	4.00 / 0.84	-1.35	.179
Newspaper articles	78	3.64 / 0.88	18	4.05 / 0.72	-1.85	.067
Office conferences	78	2.96 / 0.99	17	3.64 / 0.93	-2.59*	.011
Telephone conferences	77	2.96 / 1.05	18	3.33 / 1.02	-1.35	.180
Farm visits	77	3.40 / 1.07	18	3.77 / 0.87	-1.37	.174
Tours	78	3.51 / 0.86	18	4.00 / 0.76	-2.20*	.030
Demonstrations	77	3.62 / 0.85	18	4.16 / 0.61	-2.53*	.013
Radio programs	77	3.42 / 1.01	18	3.83 / 0.85	-1.56	.122
Television programs	77	3.37 / 1.06	18	3.83 / 0.85	-1.69	.094
Educational display	77	3.22 / 0.95	18	3.77 / 0.80	-2.29*	.024
State meetings	77	2.92 / 0.83	18	3.66 / 0.90	-3.34**	.001

*Significant at .05 level.
**Significant at .01 level.

Table 32. continued

Method	Sex of farmers: Male n	Male Mean	Male S.D.	Female n	Female Mean	Female S.D.	t-value	prob.
Area meetings	77	3.48	1.00	18	4.16	0.70	-2.73**	0.008
County meetings	76	3.65	1.04	18	4.05	0.87	-1.50	.137
Local community meetings	77	3.74	0.95	18	4.16	0.70	-1.79	.077
Self study	77	3.18	0.94	18	3.61	1.03	-1.71	.091
Use of computer	77	3.20	1.06	18	3.88	1.23	-2.37*	.020

Table 33. A comparison of the level of importance regarding extension methods when Iowa young farmers are grouped by full-time and part-time farmer

Method	Type of farmer: Full-time farmers n	Mean	S.D.	Part-time farmers n	Mean	S.D.	t-value	prob.
Bulletin	64	3.64	0.86	26	3.65	0.97	-0.06	.950
Newsletters	64	3.78	0.80	26	3.80	0.98	-0.13	.895
Newspaper articles	64	3.71	0.82	26	3.76	0.95	-0.25	.802
Office conferences	64	3.00	0.85	26	3.19	1.32	-0.68	.499
Telephone conferences	63	2.98	0.92	26	3.00	1.26	-0.06	.954
Farm visits	63	3.44	0.98	26	3.46	1.20	-0.07	.945
Tours	64	3.51	0.77	26	3.73	1.07	-0.92	.362
Demonstrations	63	3.66	0.84	26	3.80	0.89	-0.71	.483
Radio programs	63	3.44	0.92	26	3.61	1.13	-0.74	.462
Television programs	63	3.39	0.99	26	3.50	1.10	-0.43	.667
Educational displays	63	3.33	0.91	26	3.30	1.08	0.11	.910
State meetings	63	3.03	0.82	26	3.26	1.00	-1.16	.249
Area meetings	63	3.65	0.91	26	3.61	1.09	0.16	.876

Table 33. continued

Method	Type of farmer: Full-time farmers n	Mean	S.D.	Type of farmer: Part-time farmers n	Mean	S.D.	t-value	prob.
County meetings	62	3.75	0.97	26	3.73	1.00	0.12	.905
Local community meetings	63	3.82	0.83	26	4.00	0.89	-0.88	.381
Self study	63	3.28	0.95	26	3.34	0.93	-0.27	.786
Use of computer	63	3.25	1.07	26	3.57	1.30	-1.21	.230

CHAPTER V. DISCUSSION

The main purpose of this study was to determine and analyze selected factors associated with participation of Iowa young farmers in agricultural extension activities. The study was specifically designed to: (1) identify selected occupational and demographic characteristics of Iowa young farmers, (2) identify the types of contact and participation in agricultural extension activities by Iowa young farmers, (3) determine the importance of agricultural program planning in the Cooperative Extension Service as perceived by Iowa young farmers, (4) determine the importance of selected agricultural program areas provided by the Cooperative Extension Service as perceived by Iowa young farmers, and (5) determine the importance of the methods of instruction used by the Cooperative Extension Service as perceived by Iowa young farmers.

The design of the study was determined to be appropriate and adequate in terms of providing information and data upon which generalizations could be made that would reflect the purpose and objectives of this study. The reliability of the survey instrument was tested and high alpha scores were observed for the entire instrument on the importance of planning, program areas, and extension methods. This observation suggests that items within the major components related well to each other within each component. The high alpha scores also suggested that the farmers tended to respond to items within a component similarly to other items in that component.

The discussions are presented under the following sections: (1) Discussion Relevant to Demographic Information, (2) Discussion Relevant

to Types of Participation, (3) Discussion Relevant to Program Planning, (4) Discussion Relevant to Program areas, (5) Discussion Relevant to Extension Methods, and (6) Discussion Relevant to Implications of the Study.

Discussions Relevant to Demographic Information

A discussion is presented in this section relevant to demographic information. Objective 1 of this study was to identify selected demographic information of Iowa young farmers. The findings pertaining to this objective emphasized the fact that (1) the majority of Iowa young farmers were between 20 and 39 years of age, (2) their educational level was relatively high, (3) the majority of them lived on the farm, and (4) their gross income was also fairly high. These findings were consistent with a report indicating that the majority of Iowa young/adult farmers were between 20 and 49 years of age, 86 percent lived on farms, 36 percent had at least a 12th grade education, and 62 percent received over 75 percent of their gross income from farming (Martin and Bia, 1986). These findings are important for extension educators to be responsive to the needs of Iowa young farmers.. Understanding characteristics of young farmers is also useful when instructional materials and methods are being developed or support considered.

In summary, the findings pertaining to objective 1 were consistent with the review of literature and the conceptual framework established for this study.

Discussion Relevant to Types of Participation

A discussion is presented in this section relevant to types of contact and participation in agricultural extension programs and activities. Objective 2 of this study was to identify types of contact and participation in agricultural extension activities by Iowa young farmers. A review of the findings pertaining to this objective resulted in the following major observations: (1) nearly 30 percent of the respondents first heard of the Cooperative Extension Service through mass media, (2) the majority of them indicated that they had participated in meetings sponsored by the extension service, and (3) seventy percent of them indicated that they were satisfied or very satisfied with services/information provided by the extension service. These findings were consistent with a report indicating that 30.9 percent of Arkansas residents became aware of the Cooperative Extension Service through the mass media, and 62 percent of the respondents indicated that they were satisfied or very satisfied with the services provided by the Cooperative Extension Service (Jennings, 1983).

These findings suggest that Iowa young farmers seemed to have a fairly high level of awareness of the Cooperative Extension Service. They become aware of the Cooperative Extension Service by a variety of methods. No one source was found adequate to get the job done. The finding emphasizes the fact that mass media is an important way of becoming aware of the Cooperative Extension Service.

The finding also suggests that Iowa young farmers seemed to have a fairly high level of satisfaction with the services/information provided

by the Cooperative Extension Service.

Discussion Relevant to Program Planning

A discussion is presented in this section relevant to the importance of program planning. Objective 3 of this study was to determine the importance of agricultural program planning in the Cooperative Extension Service as perceived by Iowa young farmers. It was observed that three activities received a rating of 4 or higher. These activities were as follows: (1) analyze farming community situation, (2) understand and provide educational programs, and (3) plan and prepare educational activities. The remaining activities were rated between 3.44 and 3.97.

These findings suggest that the respondents perceived the program planning activities as being important. As a group, they rated these activities above 3, a rating of "some" or above in importance. Since these activities were perceived to be important by the respondents, the program developer should pay attention to this area of the program development process.

Two significant differences were found in the level of importance of program planning when the respondents were grouped by age. It was found that farmers between ages 19 to 29 rated the activity "analyze farming community situation" significantly higher in importance than group two (30 to 39) and group four (40 or over). The second significant difference was also between group one and both groups two and three. Group one (19 to 29) rated the activity "identify community resources and services" significantly higher in importance than both groups two and

three. This finding may imply that the respondents who were between ages 19 to 39 may have a higher perception of the importance of the community analysis as the base of extension programs. This finding also suggests that factors such as age may need to be taken into consideration in planning agricultural extension programs for young farmers.

No significant differences were found in the level of importance of program planning when Iowa young farmers were grouped by educational level. This finding indicates that regardless of the level of education completed, the responses to the importance of planning were similar.

Only one significant difference (at the .01 level) was found in the level of importance of program planning when Iowa young farmers were grouped by amount of annual gross income derived from all sources. It was found that group five ($40,000 to 49,999) respondents rated the activity "review past programs to identify their strengths and weaknesses" significantly lower than groups one, three and six. This highly significant difference may be due to the fact that group five respondents were not aware of the importance of this activity. The remaining activities were rated similarly by all groups. The findings suggest that, for the most part, there are no significant differences in the level of importance in program planning among Iowa young farmers with different levels of income.

When the young farmers were grouped by the amount of income derived from farming, no significant differences were found indicating that regardless of the income level, the responses to the importance of planning were similar.

Five significant differences were found in the level of importance of program planning when the respondents were compared by sex. The first three differences were detected at the .01 level and the two remaining differences were detected at the .05 level. It is interesting to note that female respondents perceived the activities as more important. These findings were consistent with reports indicating that women perceived adult education as more important and they have increased their involvement to a greater degree than have men (Johnstone and Rivera, 1969; National Center for Educational Statistics, 1980).

When the respondents were compared by the type of farmer (full-time versus part-time), no significant differences were detected in the level of importance of program planning. Again, this finding suggests that regardless of the type of farmer, the responses to the importance of program planning were similar.

In summary, for the most part, all the respondents perceived program planning as being important. The lack of many significant differences seemed to indicate that the respondents perceived program planning at a similar level of importance.

Discussion Relevant to Program Areas

A discussion is presented in this section relevant to the importance of program areas. Objective 4 of this study was to determine the importance of selected agricultural program areas provided by the Cooperative Extension Service as perceived by Iowa young farmers. It was observed that four topics in livestock production received a rating of 4

or higher. The remaining topics in livestock production were rated between 3.59 and 3.87. Five topics in crop production received a rating of 4 or higher. The remaining topics in crop production were rated between 3.63 and 3.91. It was also observed that topics related to agribusiness education such as marketing, financial planning, agricultural credit, and management received a rating of 4 or higher. These findings were consistent with a report indicating that Iowa farmers placed a very high priority on educational programs on marketing, credit, and financial planning (Martin and Bia, 1986).

The findings suggest that most of the topics in the five broad areas were confirmed by the respondents to be important. The relative rating and ranking of all topics clearly illustrated the high interest in these topics. The relatively low rating of selected topics in horticulture such as landscaping and turf management may be due to lack of knowledge concerning these topics and/or a lack of emphasis on these topics in the educational programs.

No significant differences were found in the level of importance of program areas when Iowa young farmers were grouped by level of education, gross income derived from all sources, and gross income derived from farming. The lack of significant differences seemed to indicate that the respondents perceived program areas at a similar level of importance. However, in each of the program area topics, female respondents tended to indicate higher levels of importance than male respondents. The only program topic area in which the males had a slightly higher importance, although not statistically significant, than females, was in general

agriculture. This finding suggests that factors such as sex may need to be taken into consideration in planning educational programs for Iowa young farmers.

In summary, for the most part, all the respondents perceived program areas as being important. The lack of many significant differences seemed to indicate that the respondents perceived program areas at a similar level of importance.

Discussion Relevant to Extension Methods

A discussion is presented in this section relevant to the importance of extension methods. Objective 5 of this study was to determine the importance of the methods of instruction used by the Cooperative Extension Service as perceived by Iowa young farmers. A review of the findings pertaining to objective 5 resulted in the following observations: (1) the highest rated method was local community meetings (3.82), (2) the second highest rated methods were newspaper articles and county meetings (3.73), and (3) the remaining methods were rated between 3.04 and 3.72. These findings were consistent with a report indicating that Ohio clientele perceived "local community meetings" and "county meetings" as important extension methods (Oren, 1970). These findings suggest that the program developer should pay more attention to the highest rated methods in the planning phase of the program development.

Seven significant differences existed in the perceived importance of extension methods when Iowa young farmers were grouped by age. Farmers between ages 19 to 29 and 30 to 39 rated six methods significantly higher

than farmers in group 3 (40 or over). These findings were consistent with the review of literature which indicated that the 25-29 year age groups contained a high proportion of participants to nonparticipants. One factor that may contribute to these findings is the fact reported by Cross (1981) that people in the 25-45 age range are likely to be concentrating on occupational and professional training for career advancement.

Seven significant differences were found when Iowa young farmers were compared by sex. It was observed that female respondents rated seven extension methods significantly higher than male respondents. These significant differences in the perceptions of female respondents regarding the importance of extension methods may be due to the fact that more women are entering the work force and, therefore, are in need of occupational training and retraining, and that there are more educational activities being offered for women. These findings were also consistent with the review of literature and the conceptual framework established for this study.

In summary, the findings show that in spite of the number of significant differences identified by the Scheffé tests, the respondents were in general agreement regarding the importance of extension methods.

Discussion Relevant to Implications of the Study

Results obtained from this study revealed information regarding the characteristics, types of contact and participation, and needs of Iowa young farmers. The following statements are some of the major

implications of this study to agricultural extension program planning.

Understanding of the profile of the characteristics of the participants in terms of who participate and reasons for nonparticipation is important for those concerned with the process of planning educational programs for Iowa young farmers.

High priority rating for activities which should be considered for successful program planning reflect the needs for some other considerations, such as coordination and cooperation among agencies, program planners, and the young farmers. Identification of these activities is important for educational programs designed to meet the needs of present and future young farmers.

High priority rating for educational programs in livestock production and crop production, reflect the current situation among the members of IYFEA. Some of the potential educational topics included marketing, production management, agricultural credit, financial planning, and decision making. This information was consistent with a study conducted by Martin and Bia (1986). They indicated that Iowa young and adult farmers placed high priority ratings on educational programs on marketing, planning, and management. They also stated that this information underscores a major shift in adult education from an emphasis on increasing production of crops and livestock to an emphasis on marketing, planning, and management (Martin and Bia, 1986).

It is expected that this study may provide further ideas to the people responsible for planning, implementing and/or evaluating agricultural extension programs. The author expects that similar studies

with the necessary adaptations may be developed in his home country, Sudan, through which it may be possible to increase and improve the participation of local people in determining their needs and problems.

CHAPTER VI. SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

The main purpose of this study was to determine and analyze selected factors associated with participation of Iowa young farmers in agricultural extension activities. The study was specifically designed to: (1) identify selected occupational and demographic characteristics of Iowa young farmers, (2) identify the types of contact and participation in agricultural extension activities by Iowa young farmers, (3) determine the importance of agricultural program planning in the Cooperative Extension Service as perceived by Iowa young farmers, (4) determine the importance of selected agricultural program areas provided by the Cooperative Extension Service as perceived by Iowa young farmers, and (5) determine the importance of the methods of instruction used by the Cooperative Extension Service as perceived by Iowa young farmers. This chapter is presented in four sections: (1) Summary, (2) Conclusions, (3) Recommendations, and (4) Recommendations for Further Research.

Summary

The study was conducted using the descriptive survey methods to describe the characteristics of Iowa young farmers, and supply information on the perceptions of the population sample towards the agricultural extension activities.

The population of the study was the members of the Iowa Young Farmers Educational Association (IYFEA). The survey instrument was first distributed to the young farmers who attended the Winter Institute of the

IYFEA on February 9, 1986. A total of 51 members of IYFEA completed the survey instrument. An additional random sample of 75 members of IYFEA was drawn from the population. Questionnaires were mailed the third week in April, 1986. Follow-up letters were mailed the third week in May. During the third week of June, phone calls to the remaining nonrespondents were made. Of the 75 young farmers in the sample, 65 did not respond to the initial mailing. Through follow-up procedures, 41 of the nonrespondents returned completed questionnaires for a final response rate of 51, or 68 percent.

Independent t-tests were used to determine if significant differences existed between the first group who attended the Winter Institute and the second group of young farmers (the random sample). The results of t-test indicated that for the most part, there were no significant differences between the two groups (Appendix). The two respondent groups were considered to be from the same population.

A survey questionnaire was used to collect the data. The survey instrument was developed using the experiences of the researcher, the literature, and suggestions from Iowa State University personnel. The questionnaire was pretested with faculty and graduate students of the Department of Agricultural Education at Iowa State University in an effort to strengthen the survey instrument. Nonessential questions were eliminated and wording was improved with their suggestions. The survey instrument covered the following areas: (1) importance of program planning, (2) importance of selected program areas, (3) importance of extension methods, (4) demographic information, and (5) types of

participation in agricultural extension activities. Likert-type scales were used for the first three areas as follows: 1 = Not Important, 2 = of Little Importance, 3 = Somewhat Important, 4 = Important, and 5 = Very Important. The reliability coefficients for the entire instrument on the importance of program planning, program areas, and extension methods was .94.

Appropriate statistical procedures were employed to analyze and summarize the data. These procedures yielded percentages, means, standard deviations, t-tests, and one-way analysis of variance for various information presented in this study. All analyses were conducted to answer the specific objectives of the study.

Conclusions

The researcher recognizes the need to initiate and establish general conclusions and recommendations to serve as a basis for developing an ideal framework for planning agricultural extension programs for Iowa young farmers. A review of the findings of this study resulted in the following conclusions:

1. Nearly 78 percent of the respondents were males, while 17.65 percent were females.
2. The majority of the respondents were between 20 and 39 years of age.
3. Sixty-five percent of the respondents spent 50 percent or more of their time in farming and 21.57 percent spent 50

percent or more of their time in professional related jobs.

4. The majority of the respondents lived on farms.
5. Nearly 25 percent of the respondents had a twelfth grade education, 29.41 percent of the respondents had some college or technical school education, 15.69 percent of the respondents had associate degrees, and 22.55 percent of the respondents had Bachelor's degrees.
6. Thirty-six percent of the respondents had income, from all sources, of over $50,000, 21 percent had incomes between $20,000 and 29,999, and 14.71 percent had income between $10,000 and 19,999.
7. Nearly 55 percent of the respondents indicated that over 76 percent of their annual gross income was derived from farming.
8. Nearly 34 percent of the respondents indicated that they did not own land, 26.47 percent owned between 1 and 100 acres, and 13.73 percent owned between 101 and 200 acres.
9. Nearly 17 percent of the respondents indicated that they did not rent land, 14.71 percent indicated that they rented 601 or over acres, and 13.73 respondents indicated that they rented between 101 and 200 acres.
10. Nearly 51 percent of the respondents had 3 to 4 people in their household, 24.51 percent had 1 to 2 people, and 20.59 percent had 5 to 6 people.

11. Nearly 30 percent of the respondents first heard of the Cooperative Extension Service through the mass media, 26.47 percent from family members, and 24.51 percent from friends/neighbors.
12. The majority of the respondents had used the services of the CES. Nearly four percent of the respondents had not used the services of the CES because they did not feel the need for educational services. Of this group, 1.96 percent did not use the services because they were not aware of the educational programs.
13. The majority of the respondents had participated in meetings sponsored by the Cooperative Extension Service. Only 10 percent had never participated in meetings sponsored by the Cooperative Extension Service.
14. Nearly three-fourths of the respondents indicated that they were satisfied or very satisfied with services/information provided by the extension service. Only eight respondents (7.84%) indicated that they were dissatisfied with the services/information provided by the extension service and 18 respondents (17.64%) indicated that they had no opinion.
15. The mean importance rating of all twelve planning activities were all above 3.00, ranging from 3.44 to 4.15. The three activity items rated most important, in descending order, were: analyze farming community

situation, understand and provide educational programs, and plan and prepare educational activities.

16. The respondents were very similar in their perceptions regarding the importance of program planning when they were grouped and compared, based on selected demographic variables other than sex.
17. Female respondents rated five planning activities significantly higher than male respondents. These activities were: identify community resources, determine priorities, understand and provide educational programs, plan and prepare educational activities, and plan practical learning activities.
18. The overall mean score for level of importance in selected topics in livestock production was 3.93. The highest rated topic was production records.
19. The overall mean score for level of importance in selected topics in crop production was 3.95. The highest rated topic was marketing of crops.
20. The overall mean score for level of importance in selected topics in agricultural mechanics was 3.37. The highest rated topic was machinery maintenance.
21. The overall mean score for level of importance in selected topics in horticulture was 2.96. The highest rated topic was vegetable production.
22. The overall mean score for level of importance in selected

topics in general agriculture was 4.06. The highest rated topic was financial planning.

23. The respondents were very similar in their perceptions regarding the importance of program areas when they were grouped and compared, based on selected demographic variables, other than age and sex.
24. Most of the observed differences involved group three (40 years or over) which consistently rated the importance of the program areas lower than other groups.
25. Female respondents rated livestock production and horticulture significantly higher than male respondents.
26. The highest rated extension method was local community meetings. Both newspapers and county meetings were rated as the second highest in importance.
27. The respondents were very similar in their perceptions regarding the importance of extension methods when grouped and compared, based on selected demographic variables other than age and sex.
28. Most of the observed differences involved group three (40 years or over) which consistently rated the importance of extension methods lower than other groups.
29. Female respondents rated educational displays, state meetings, area meetings, and use of computers significantly higher than male respondents.

Recommendations

This study was designed to determine and analyze selected factors associated with participation of Iowa young farmers in agricultural extension activities. Based on the findings, and the conclusions drawn, the following suggestions are made:

1. It appears from this study that extension program planning should be approached primarily from the point of view of the clientele served, and secondarily from a subject matter point of view.
2. The Cooperative Extension Service should increase the involvement of young farmers in planning and conducting educational programs. Training should be conducted for agricultural extension personnel on how to involve local people. Training should also be made available for young farmers so they can contribute more to agricultural extension programs.
3. Extension professionals, young farmers, and IYFEA leaders should identify and prioritize educational needs.
4. Educational programs should be planned and/or revised for present and future young farmers to emphasize the educational topics with the highest priority (i.e., production records, marketing, and production management.
5. Because most of the significant differences in the ratings of the importance of program planning, program areas,and extension methods were attributed to the differences of

sex, age, and income, it is important to consider these factors when planning and conducting educational programs for Iowa young farmers.

6. Local meetings, county meetings, and newspaper articles are methods that should be used in the planning of educational programs for Iowa young farmers.
7. Because the use of mass media was perceived by the respondents as an important source of first learning about the Cooperative Extension Service, it is recommended that extension administrators should provide training to all agricultural extension professionals which enables them to learn how to effectively utilize mass media techniques as tools to enhance the image of the Cooperative Extension Service.
8. The results of this study should be shared with extension administrators, IYFEA leaders, Iowa young farmers, and individuals responsible for planning and providing services for them.

Recommendations for Further Research

The following recommendations are made for additional research in adult and extension education in Iowa:

1. A more comprehensive study, involving all members of IYFEA, should be conducted and the results compared with the findings of this study.

2. Variables other than those utilized in this study such as marital status, level of participation, and employment status of women should be identified and investigated with Iowa young farmers in relation to the Cooperative Extension Service.
3. Research needs to be conducted to determine what technical and professional competencies adult and extension educators should possess to assist Iowa young farmers.
4. The Cooperative Extension Service should evaluate their programs in methods of instruction and topics involved, to make them more attractive to Iowa young farmers.
5. Additional studies should be conducted to determine the effectiveness of agricultural extension programs as perceived by Iowa young farmers.
6. Research should be initiated to further expand and validate the procedures used in this study with other program areas in Cooperative Extension Service, such as: Home Economics, 4-H/youth, and Community Resource Development.

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ACKNOWLEDGEMENTS

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Last, but not least, very special thanks and appreciation is expressed to the academic and administrative staff and graduate students in the Department of Agricultural Education.

APPENDIX

A Comparison of the Responses by the Two Groups of Iowa Young Farmers

Item	Group 1 n	Group 1 Mean	Group 1 S.D.	Group 2[1] n	Group 2 Mean	Group 2 S.D.	t-value	prob.
PROGRAM PLANNING								
Involve county extension council in program development	51	3.45	.90	50	3.44	.97	0.06	.953
Identify and involve appropriate community leaders	51	3.66	1.07	50	3.72	.88	-0.27	.785
Analyze farming community situation to identify needs	51	4.09	1.02	51	4.21	.67	-0.69	.495
Identify community resources	50	3.82	.98	51	3.78	.78	0.20	.840
Review past programs	51	3.88	.99	51	3.92	.82	-0.22	.828
Determine priorities of community needs	51	4.03	.95	50	3.90	.73	0.82	.415
Identify audience for specific programs	50	3.90	.97	50	3.64	.94	1.36	.178
Train county extension council	49	3.91	1.11	49	3.83	1.00	0.38	.705
Understand and provide educational programs	50	4.20	.90	50	3.96	.83	1.38	.170
Plan and prepare educational activities	50	4.12	.96	50	3.94	.74	1.05	.297
Plan practical learning activities	49	3.89	.96	51	3.68	.94	1.11	.271

[1]Group 1 = Farmers who attended the IYFEA Winter Institute.
Group 2 = The random sample.

Item	Group 1 n	Group 1 Mean / S.D.	Group 2[1] n	Group 2 Mean / S.D.	t-value	prob.
Plan activities to help individual clientele	48	3.68 / 1.01	51	3.62 / .91	0.31	.758
PROGRAM AREAS						
Livestock production	48	4.05 / .80	47	3.82 / .46	1.68	.098
Crop production	48	4.01 / .78	51	3.90 / .51	0.79	.430
Agricultural mechanics	48	3.48 / 1.02	49	3.31 / .64	0.96	.339
Horticulture	42	3.37 / 1.10	43	2.58 / .82	3.75**	.000
General agriculture	49	4.15 / .83	51	4.00 / .51	1.02	.309
EXTENSION METHODS						
Bulletins	50	3.56 / 1.03	49	3.71 / .79	-0.83	.407
Newsletters	50	3.64 / .96	49	3.81 / .83	-0.97	.333
Newspaper articles	50	3.78 / .97	49	3.69 / .76	0.49	.627
Office conferences	49	3.06 / 1.08	49	3.12 / .92	-0.30	.765
Telephone conferences	49	3.04 / 1.02	49	3.04 / 1.07	0.00	1.000
Farm visits	49	3.44 / 1.02	49	3.51 / 1.08	-0.29	.774

[1]Group 1 = Farmers who attended the IYFEA Winter Institute.
Group 2 = The random sample.
**Significant at .01 level.

Item	Group 1 n	Group 1 Mean / S.D.	Group 2[1] n	Group 2 Mean / S.D.	t-value	prob.
Tours	50	3.64 / .80	49	3.55 / .91	0.52	.608
Demonstrations	49	3.81 / .85	49	3.63 / .80	1.09	.278
Radio programs	49	3.59 / .97	49	3.38 / 1.01	1.01	.314
Television programs	49	3.55 / 1.06	49	3.36 / 0.99	0.88	.379
Educational displays	49	3.46 / 1.00	49	3.16 / 0.87	1.16*	.011
State meetings	49	3.26 / 0.93	49	2.87 / .80	2.20*	.030
Area meetings	49	3.71 / .97	49	3.48 / .98	1.13	.260
County meetings	49	3.79 / 1.02	48	3.66 / .99	0.63	.530
Local community meetings	49	3.89 / .91	49	3.75 / .92	0.77	.445
Self study	49	3.44 / 1.02	49	3.10 / .87	1.81	.074
Use of computer	49	3.69 / 1.15	49	3.02 / .98	3.09**	.003

[1]Group 1 = Farmers who attended the IYFEA Winter Institute.
Group 2 = The random sample.
*Significant at .05 level.
**Significant at .01 level.

Iowa State University of Science and Technology Ames, Iowa 50011

Department of Agricultural Education
201 Curtiss Hall
Telephone: 515-294-5872

Dear Iowa Young Farmer:

Agricultural and extension educators are continually searching for ways in which to better serve extension clientele. Without input from extension clientele, extension professionals may not know steps which should be taken toward providing viable information.

We need your input! We would like to have you complete the enclosed questionnaire in order to help us identify the current perceptions of Iowa young farmers regarding participation in agricultural extension programs.

Your frank and genuine responses are very important to the success of this study. By completing and returning this questionnaire you will contribute to potential enhancement of the economy of Iowa.

Your responses will be kept in strict confidence. Only group data, which is compiled from individual responses, will be used in this study. Coding of the survey form is a means to contact those people who have not returned the survey form. Upon receipt of the survey forms all code numbers will be removed and destroyed. All questionnaires will be destroyed upon analysis of the data.

Please return the survey within the next two weeks. If you do not wish to participate in the study, please return the blank questionnaire.

We appreciate your understanding and cooperation in this important study.

Thank you!

Sincerely,

Mahmoud H. Omer
Research Assistant

Robert A. Martin
Assistant Professor

Iowa State University of Science and Technology Ames, Iowa 50011

Department of Agricultural Education
201 Curtiss Hall
Telephone: 515-294-5872

May 21, 1986

Dear Iowa Young Farmer:

A few weeks ago you received a questionnaire regarding participation of Iowa Young Farmers in agricultural extension programs. We realize that this is a very busy time of the year. However, it is important that we have your input in order to make the study worthwhile. The survey requires only a few minutes to complete. We would appreciate it if you would complete the questionnaire at your earliest convenience and return it in the enclosed, stamped envelope.

Thank you for your cooperation.

Sincerely,

Mahmoud H. Omer
Research Assistant

Robert A. Martin
Assistant Professor

Iowa State University of Science and Technology Ames, Iowa 50011

Department of Agricultural Education
201 Curtiss Hall
Telephone: 515-294-5872

June 16, 1986

Dear Iowa Young Farmer:

A few weeks ago you received the second copy of the survey regarding Participation of Iowa Young Farmers in Agricultural Extension Programs. The survey asks you to respond to various questions about participation in extension programs. As of this date, we have not received your survey.

We need your help! Your input is very important. This process of contacting farmers all over Iowa is expensive for us, but we believe the information is critical to all of us in agriculture.

We have enclosed another survey form. Please respond. Your responses are strictly confidential. The survey requires only a few minutes to complete. We would appreciate it if you would complete the survey at your earliest convenience and return it in the enclosed, stamped envelope.

Thank you for your cooperation.

Sincerely,

Mahmoud H. Omer
Research Assistant

Robert A. Martin
Assistant Professor

ANALYSIS OF SELECTED FACTORS ASSOCIATED WITH PARTICIPATION OF IOWA YOUNG FARMERS IN AGRICULTURAL EXTENSION PROGRAMS

PART A

I. IMPORTANCE OF PLANNING

Extension personnel use a variety of strategies in planning educational programs including the ones listed below. Please indicate how important you feel each activity is in planning extension educational programs for young farmers. Use the following rating scale:

1 = Not Important
2 = Of Little Importance
3 = Somewhat Important
4 = Important
5 = Very Important

Activities	Not Important	Of Little Importance	Somewhat Important	Important	Very Important
1. Involve county extension council in the program development process.	1	2	3	4	5
2. Identify and involve appropriate community leaders in the program development process.	1	2	3	4	5
3. Analyze farming community situation to identify educational needs.	1	2	3	4	5
4. Identify community resources, facilities and services to assist with extension programs.	1	2	3	4	5
5. Review past programs to identify their strengths and weaknesses.	1	2	3	4	5
6. Determine priorities of community needs.	1	2	3	4	5
7. Identify audience (their norms, values, attitudes, etc.) for specific programs.	1	2	3	4	5
8. Train county extension council to perform their jobs.	1	2	3	4	5
9. Understand and provide educational programs to meet educational needs.	1	2	3	4	5
10. Plan and prepare educational activities.	1	2	3	4	5

		Not Important	of Little Importance	Somewhat Important	Important	Very Important
11.	Plan practical learning activities for target audiences.	1	2	3	4	5
12.	Plan activities to help individual clientele with problems.	1	2	3	4	5

II. IMPORTANCE OF EDUCATIONAL PROGRAM AREAS

The following are common program areas of extension education for farmers. Please indicate how important each program area is in meeting the educational needs of young farmers. (Use the same scale except NA stands for not applicable in your area).

Livestock Production							
1.	Health and Diseases of Livestock	NA	1	2	3	4	5
2.	Marketing of Livestock	NA	1	2	3	4	5
3.	Feeds and Feeding	NA	1	2	3	4	5
4.	Production Management	NA	1	2	3	4	5
5.	Production Records	NA	1	2	3	4	5
6.	Herd Records	NA	1	2	3	4	5
7.	Breeding and Reproduction	NA	1	2	3	4	5
8.	Use of Computer	NA	1	2	3	4	5
Crop Production							
9.	Pests and Diseases of Crops	NA	1	2	3	4	5
10.	Crop Pesticides	NA	1	2	3	4	5
11.	Soil Fertility	NA	1	2	3	4	5
12.	Chemical Safety	NA	1	2	3	4	5
13.	New Crop Varieties	NA	1	2	3	4	5
14.	Marketing of Crops	NA	1	2	3	4	5
15.	Production Management	NA	1	2	3	4	5
16.	Production Records	NA	1	2	3	4	5
17.	Use of Computer	NA	1	2	3	4	5
Agricultural Mechanics							
18.	Machinery Calibration	NA	1	2	3	4	5
19.	Machinery Maintenance	NA	1	2	3	4	5
20.	Electric Power	NA	1	2	3	4	5
21.	Facilities Construction	NA	1	2	3	4	5
22.	Surveying	NA	1	2	3	4	5
23.	Concrete	NA	1	2	3	4	5
24.	Masonry	NA	1	2	3	4	5
25.	Safety	NA	1	2	3	4	5

			Not Important	Of Little Importance	Somewhat Important	Important	Very Important
Horticulture							
26.	Vegetable Production	NA	1	2	3	4	5
27.	Fruit Production	NA	1	2	3	4	5
28.	Landscaping	NA	1	2	3	4	5
29.	Turf Management	NA	1	2	3	4	5
General Agriculture							
30.	Financial Planning	NA	1	2	3	4	5
31.	Agricultural Credit	NA	1	2	3	4	5
32.	Computer Use	NA	1	2	3	4	5
33.	Decision Making	NA	1	2	3	4	5
34.	Leadership in Agriculture	NA	1	2	3	4	5

III. IMPORTANCE OF EXTENSION METHODS

The following methods are commonly used by the extension service in providing assistance to farmers. Please indicate how important each method is in assisting young farmers.

1.	Bulletins	1	2	3	4	5
2.	Newsletters	1	2	3	4	5
3.	Newspaper Articles	1	2	3	4	5
4.	Office Conferences	1	2	3	4	5
5.	Telephone Conferences	1	2	3	4	5
6.	Farm Visits	1	2	3	4	5
7.	Tours	1	2	3	4	5
8.	Demonstrations	1	2	3	4	5
9.	Radio Programs	1	2	3	4	5
10.	Television Programs	1	2	3	4	5
11.	Educational Displays	1	2	3	4	5
12.	State Meetings	1	2	3	4	5
13.	Area Meetings	1	2	3	4	5
14.	County Meetings	1	2	3	4	5
15.	Local Community Meetings	1	2	3	4	5
16.	Self Study (via correspondence courses)	1	2	3	4	5
17.	Use of Computer	1	2	3	4	5

PART B

Instructions: Please circle the letter next to the response which best describes your situation. Please circle only one best response or write in the information.

1. Your sex is:

A. Male
B. Female

2. Your age (in years) is:

   A. 19 or under
   B. 20 to 29
   C. 30 to 39
   D. 40 to 49
   E. 50 to 59
   F. 60 or over

3. Please write the name of the occupation in which you spend 50% or more of your time _____.

4. The proportion of time you are involved in farming is:

   A. Full Time
   B. Part Time
   C. None

5. Your present residence is:

   A. Farm
   B. Rural Non-Farm
   C. Small Town (less than 2,499 people)
   D. Town (2,500 to 20,000 people)
   E. City (more than 20,000)

6. The highest educational level you have achieved is:

   A. Grades 1 to 8
   B. Grades 9 to 11
   C. Grade 12
   D. Some College or Technical School
   E. Associate Degree
   F. Bachelor's Degree
   G. Master's Degree
   H. Beyond a Master's Degree

7. The approximate gross income in your household (from all sources) is:

   A. $0.0 to 9,999
   B. $10,000 to 19,999
   C. $20,000 to 29,999
   D. $30,000 to 39,999
   E. $40,000 to 49,999
   F. $50,000 or over

8. The percentage of the annual gross income in your household which was derived from farming is:

   A. 1 to 25%
   B. 26 to 50%
   C. 51 to 75%
   D. 76 to 100%
   E. None

9. Please write in the number of acres you own and rent.

_____ + _____ = _____
own rent total

10. Please write in the size of your household.

_____ persons

11. How did you first hear about agricultural extension services?

A. Family
B. Friends/Neighbors
C. Mass Media (radio, t.v., newspapers, etc.)
D. Other _____(specify)

12. To what extent do you use agricultural extension?

A. Never
B. Seldom
C. Often
D. Frequent

(IF YOU CIRCLED B, C, OR D, MOVE TO NUMBER 14 WITHOUT COMPLETING NUMBER 13)

13. If you do not use the services of agriculturl extension, which of the following reasons would help explain why not?

A. Extension educational programs offered at inconvenient time or place.
B. Not aware of extension educational programs.
C. Do not feel the need for extension educational programs.
D. Others _____ (specify)

14. To what extent do you participate in meetings sponsored by agricultural extension?

A. Never
B. Seldom
C. Often
D. Frequent

15. How satisfied have you been with the service/information provided by agricultural extension?

A. Very Satisfied
B. Satisfied
C. No Opinion
D. Dissatisfied
E. Very Dissatisfied

Thank you for your cooperation!

Code No. _____

INFORMATION ON THE USE OF HUMAN SUBJECTS IN RESEARCH
IOWA STATE UNIVERSITY
(Please follow the accompanying instructions for completing this form.)

1. Title of project (please type): Perceptions of Iowa Young Farmers Regarding Participation in Agricultural Extension Programs

2. I agree to provide the proper surveillance of this project to insure that the rights and welfare of the human subjects are properly protected. Additions to or changes in procedures affecting the subjects after the project has been approved will be submitted to the committee for review.

Typed Named of Principal Investigator	Date	Signature of Principal Investigator
Mahmoud H. Omer	Jan. 31,86	

Campus Address	Campus Telephone
223 Curtiss Hall	294-0901

FEB 4 '86

3. Signatures of others (if any)

Signatures of others (if any)	Date	Relationship to Principal Investigator
	2/3/86	

4. ATTACH an additional page(s) (A) describing your proposed research and (B) the subjects to be used, (C) indicating any risks or discomforts to the subjects, and (D) covering any topics checked below. CHECK all boxes applicable.

- ☐ Medical clearance necessary before subjects can participate
- ☐ Samples (blood, tissue, etc.) from subjects
- ☐ Administration of substances (foods, drugs, etc.) to subjects
- ☐ Physical exercise or conditioning for subjects
- ☐ Deception of subjects
- ☐ Subjects under 14 years of age and(or) ☐ Subjects 14-17 years of age
- ☐ Subjects in institutions
- ☐ Research must be approved by another institution or agency

5. ATTACH an example of the material to be used to obtain informed consent and CHECK which type will be used.

- ☐ Signed informed consent will be obtained.
- ☒ Modified informed consent will be obtained.

6. Anticipated date on which subjects will be first contacted: Month 2 Day X Year 86

Anticipated date for last contact with subjects: Month 3 Day 14 Year 86

7. If Applicable: Anticipated date on which audio or visual tapes will be erased and(or) identifiers will be removed from completed survey instruments: Month ___ Day ___ Year ___

8. Signature of Head or Chairperson: [signature] Date: 2/3/86 Department or Administrative Unit: Agricultural Education

9. Decision of the University Committee on the Use of Human Subjects in Research:

☒ Project Approved ☐ Project not approved ☐ No action required

Name of Committee Chairperson	Date	Signature of Committee Chairperson
George G. Karas	2/7/86	

Interoffice Communication 144

IOWA STATE UNIVERSITY
of Science and Technology

DATE: February 6, 1986

TO: George Karas
Graduate College
201 Beardshear Hall

FROM: David L. Williams
Professor and Head
Agricultural Education Department

RE: Mahmoud Omer's Information on Use of Human Subjects in Research Form Submitted February 3, 1986

Please be advised that the Iowa Young Farmers Association is a public organization made up of young farmers participating in educational programs sponsored by Iowa high schools. Membership in this organization is public information and will be made available to Mr. Omer for his research.

Thank you.

ld

Approved for the Committee
2/7/86